

KIT CAR

THE CAR BUILDER'S AUTHORITY

PAINT & BODYWORK

SPECIAL!

- 
- Pro Tips, Tricks & Techniques**
- Working With Carbon Fiber**

AMERICA'S SPORTS CAR RETURNS

**A TRIKE WITH
ATTITUDE**

KIRBAN'S DEVIL IN A BLUE DRESS

**Awesome Cars
Featured Inside**

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SEP 02

CHICAGO IL 60652-1960

How To Install Windshield Wipers

Basic Tech: Air Conditioning

What does Car & Driver Magazine say about Everett-Morrison's **Cobra** REPLICA 427SC



"... the logical way to do a better Cobra..."

"...we have an Everett-Morrison kit designed to accept the current Corvette suspension. Owner Larry Rea of Cedar Park, Texas, built it with his son, Lucas, in ten days."

"Everett-Morrison offers a broader variety of chassis possibilities than any other kit-maker I've found."

"The suspension has the fast, 13:1 power steering and the after-1988 Corvette rear geometry."

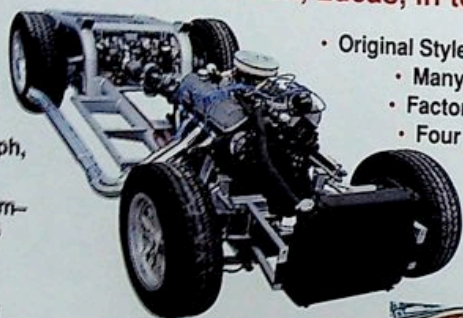
"Braking was exceptionally good at 161 feet from 70 mph, and 1.04g was measured on the skidpad."

"This car holds our record for fastest through the slalom—averaging 71.2 mph (the Nissan 300ZX Turbo did it at 69.6 mph, the old record). Steering response, though, was quicker than lightning."

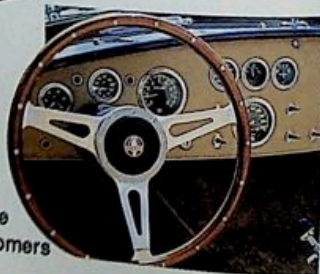
"Everything about the car is skewed in the direction of steering quickness... its light weight, its rear weight bias, its power steering, its short wheelbase, and its low-profile tires on wide wheels. The combination makes a standard Corvette feel as lethargic as a Limousine."

"... the Corvette suspension was more composed than any of the others."

Car and Driver Magazine, December, 1991.



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KIT CAR

THE CAR BUILDER'S AUTHORITY

MAY 2000 • VOLUME 19, NUMBER 3

SPECIAL FEATURES

Alternative Kits36
And now for something completely different

A Stitch In Time14
Using carbon-fiber stitching to improve fiberglass mods and repairs

Compucolor22
New technology helps you find the perfect shade

'32 Hiboy Update48
Getting paint on a body serves as an impetus for getting the project finished

FEATURES

Keith Kaucher's Kit Concepts43
The Snake meets street rodding

SHOWCASE

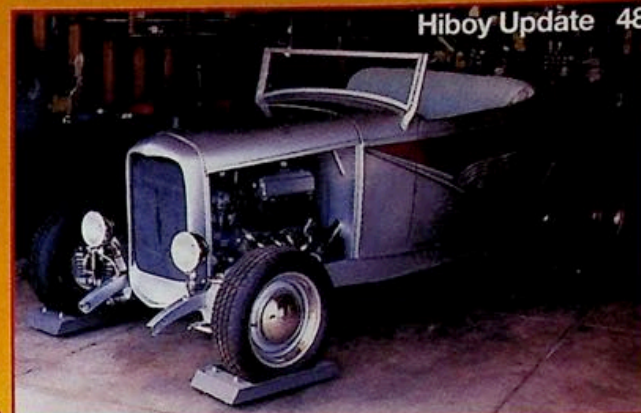
Enzo's Track Star19
What kind of Cobra replica does a Cobra parts supplier drive?

Cavaliere Attitude28
A boyhood dream becomes a career

Grin And Bare It32
This Scorpion three-wheeler has the heart of a sports car

Rule Breaker44
A late-'50s vintage Corvette with a hot rod heart

Devil With A Blue Dress56
This Kirban Diablo will put a spell on you!



Hiboy Update 48

TECHNICAL

How To: Install Low-Buck Windshield Wipers...54
Junkyard components make this a budget install for almost any car

Basic Tech: Air Conditioner/Heater60
Adding A/C and heat increases driving enjoyment

DEPARTMENTS

Driver's Side4
Real Happiness Is...

Mailbox6
Dear Kit Car

Specialty Scene ...8
Noteworthy news and views

Show-Off12
Readers' rides

Off the Shelf64
Helpful project parts

Kit Tech66
Answers to technical questions

Kit Carchives73
Dandy LaDawri



Cavaliere Attitude 28



Enzo's Track Star 19

ON THE COVER:
As if spreading her wings to take flight, this Kirban Diablo is certainly a beautiful devil in a blue dress. Its owner tired of exotic European machinery and found this kit car the perfect replacement without the high-dollar upkeep of a Euro supercar. Photo by Harold Pace. The unmistakable grille of Vette-Rod's late-'50s Corvette roadster should warm the hearts of Chevy fans wanting to build a replica of America's sports car. Photo by Harold Pace. For a little change of pace, how about a BMW-powered three-wheeler with lots of attitude. Photo by David Fetherston.

DRIVER'S SIDE

kitcar@emapUSA.com

By Jim Youngs



I seem to be happiest under the hood of an old car, grease everywhere, and a great sense of accomplishment in doing something mechanical.

REAL HAPPINESS IS...

Practically every Saturday morning my buddy Ben heads from the suburbs to downtown, just behind Coors Field—often at the wheel of his supercharged '54 Kurtis 500M—to spend part of the day with Dale Young. In his mid seventies, Dale operates his machine shop and does some rather mundane repairs, but you know from the very first step into his world that he's a car guy's car guy. In addition to all the aging machinery and tools of a professional machinist lined up on one side of the shop, three fiberglass Cobra replicas and a '50s vintage Vette take up the floor space on the opposite side. An engine stand holds a Ford small-block from the '50s, an old manifold sporting three deuces sits in a corner, Hilborn injector stacks and manifolds hang from the rafters, a huge piston serves as a doorstop, and photos of Pikes Peak Hillclimb cars and Kurtis racers dot the walls of his modest office.

One of the Snake replicas is my Indy Exotics, Corvette-based roadster, ready once again for the road with Dale and Ben's help. The two other Cobras are Dale's, one of which is quite distinct, and the other a nice, basic, run-of-the-mill Mustang-based kit. *Unique* is kind of an understatement when you consider one of his Snakes is built on a Pikes Peak Sprint Car-style chassis and powered by a 413ci small-block churning out something like 720 hp on alcohol. It may see the Peak again sometime. Both cars are slowly under construc-

tion and we hope to tell you more about both of them in the future.

I also visit Dale as often as I can, mostly to learn and absorb as much about making things as possible. Dale is generous with his time and talents, and he's helped me greatly on several car projects.

My observation is that Dale probably enjoys working on and solving problems, and finding answers to challenges perhaps more than the end result. I've met a lot of car guys in recent years—and me included—who admit their enjoyment of kit cars is in working on them and building them, not necessarily in owning and driving these novel vehicles. By the time I get close to finishing a project, I'm already looking around for the next thing I can put a wrench to. My collection of four kit cars in various stages of completion and two old, modified production cars would prove that, and portend some kind of sickness, really.

I think one of the reasons that projects don't get finished quickly is that we love working on them. We take pride in accomplishing the numerous tasks it takes to build a car. In a rerun of *Tool Time* last night, the unveiling of Tim Taylor's fat-fendered Ford 'vert street rod, which was supposed to be complete, showed a car minus its interior, top, and even its engine. Tim spouted a bunch of excuses for having to change things and, much to his family's chagrin, he could then work on the car for several more months.

I think we all feel a twinge of regret when our project cars are finished, particularly those of us who haven't lined up another project. Even though a car is really never finished, the little updates we make to a finished car pale in comparison to researching and hunting for problem-solver components, fretting over color choices, and reeling over all of the upholstery possibilities. Sure it's fun to show off the car, but wouldn't you really rather be installing a new set of coilovers or redoing the whole brake system?

KC

By the time I get close to finishing a project, I'm already looking around for the next thing I can put a wrench to.

KIT CAR

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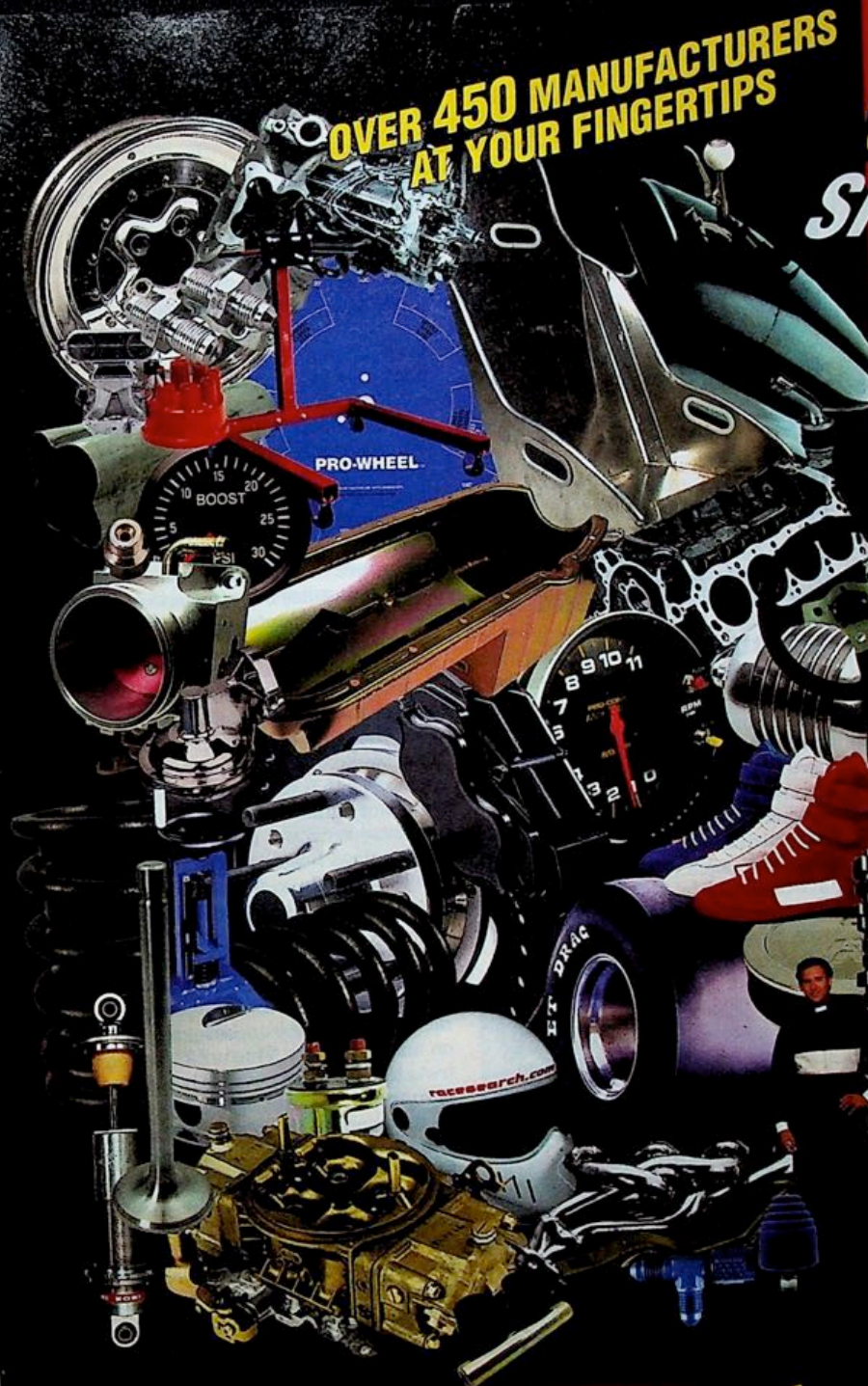
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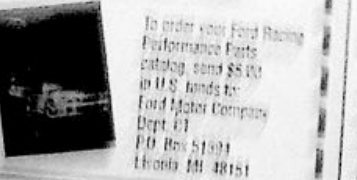


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MAILBOX



MUSCULAR MINI

A year ago, I wrote about the Mini Cooper S. I was amazed at how well it handled, how much power it had, and how much fun it was to drive. I was also impressed by the fact that it was a small car with a lot of personality. I was also impressed by the fact that it was a small car with a lot of personality.

Wonder no more. This Mini Cooper S is a real beauty. It's got a lot of power, a lot of personality, and a lot of fun. It's got a lot of power, a lot of personality, and a lot of fun. It's got a lot of power, a lot of personality, and a lot of fun.

EMISSIONS REBUTTAL

I read your article "Emissions Insanity" (Driver's Side, Sept. '99). I feel I must take issue with your objection to the California emissions requirements. I have found very few of these emissions requirements to be "overkill" and I'm glad that the Feds and California have been highly aggressive in insisting that the internal combustion engine be cleaned up.

...the volume of mail received, we can't answer personally.

Today, I can't remember the last time I took a "painful breath" I rode the mountains from my home. I have two hit cars that must be seen checked every two years, and I'm "Do what?" I support the California Emissions Insanity. Because it's so nice to be able to see those mountains and breathe the air we were meant to.

Thanks for your comments, Mike. I got your tip in Los Angeles and agree wholeheartedly with your assessment of the improved air quality conditions. I recall the huge burning and the eye-watering on warm summer days that it wasn't much fun. I fully realize that some of the emissions tests spotted in the cloud inspection is aimed at "polluting" conditions on short up and down conditions. My "rebuttal" doesn't have a computer. I really don't mind adding a heat step and well, but I'm not a scientist. These engines work. After all, my car always has a clean, shiny engine and a lot of power. My "rebuttal" is the equipment that I use to clean up the exhaust. I don't know if you're right or not, but I'm not a scientist. These engines work. After all, my car always has a clean, shiny engine and a lot of power.

Letters in Mailbox reflect the opinions of the writers and do not reflect the opinions of this magazine. Write to us at Mailbox, KIT Car, 8420 Wilshire Blvd., Los Angeles, CA 90048 or by e-mail to editor@kitcar.com. Letters should include the writer's name, address, and phone number or e-mail address. We reserve the right to edit letters for clarity, brevity, or other editorial purposes but, due to the volume of mail received, we can't answer personally.

Mike, I can't remember the last time I took a "painful breath" I rode the mountains from my home. I have two hit cars that must be seen checked every two years, and I'm "Do what?" I support the California Emissions Insanity. Because it's so nice to be able to see those mountains and breathe the air we were meant to.

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ALFA

I've read your magazine for many years and thought it's time to build! Is the old 200 version Alfa Romeo kit still being offered for sale? Also, why don't you still carry the Var Sale section in 2000? Keep up the good work and let us know if the 2000 version is still available.

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Take a lot of cool cars from our recent post, the Alfa Romeo Rallye. We've never published a "Rallye" section. Perhaps you can convince us that it's worth doing.

E-MAIL

I just read the kit, 2000, the 2000, and I'm not a scientist. These engines work. After all, my car always has a clean, shiny engine and a lot of power. My "rebuttal" is the equipment that I use to clean up the exhaust. I don't know if you're right or not, but I'm not a scientist. These engines work. After all, my car always has a clean, shiny engine and a lot of power.

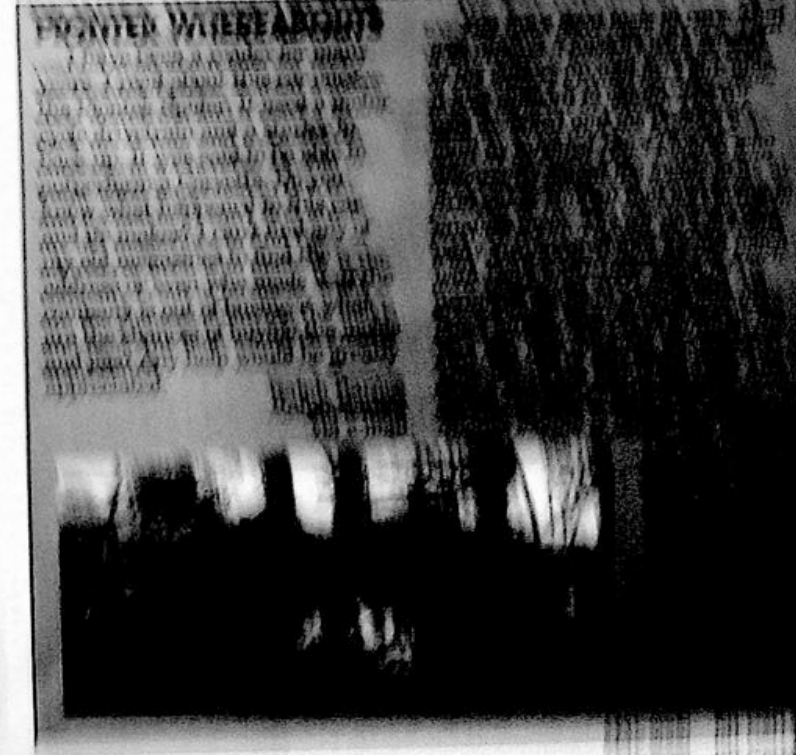
Ranch "largest gun dealer." What gives? I would like more info on these two builders.

Thanks for your note, Alan. We suggest you might try the tried-and-true, low-tech method of contacting those companies. Pick up the phone and give them a call for information or write to them. In the Buyer's Guide listing we provide several ways of contacting each company.

GRAND SPORT

I asked about a Grand Sport Corvette I saw in one of your recent issues. I'm a little bit of a car guy, and I would love to see one. I would love to see one. I would love to see one.

Sorry, Mike. I'm not a scientist. These engines work. After all, my car always has a clean, shiny engine and a lot of power. My "rebuttal" is the equipment that I use to clean up the exhaust. I don't know if you're right or not, but I'm not a scientist. These engines work. After all, my car always has a clean, shiny engine and a lot of power.



SPECIALTY SCENE



CZECH IT OUT

Following on from the editor's experiences with old Czech-built Skodas during his visit to Slovakia (Driver's Side, Jan. 2000) comes the news that he's not alone in seeing the potential of using the boxy rear-engine air-cooled contraptions as a base for a kit car.

While these cars never made it to the USA, they were sold in the UK and, although far better equipped than Skodas sold in Eastern Europe, they were still at the bottom of the motoring heap. People bought them new simply because they were cheap, and that, combined with their poor quality, means that you can get tatty, used examples for practically

nothing, just like you used to be able to with old VWs.

This wasn't lost on Paul Banham (maker of the XJSS featured in the Brit kit roundup) who came up with a body conversion to turn the unloved old Czech into a remarkably convincing replica of the Porsche 550 Spyder—one that, thanks to its cheap donor vehicle, can be on the road

for the equivalent of a measly \$5,500.

Since then, the prolific Mr. Banham has added a second Skoda-based kit to his range. Called the Redina, this one uses an original body design and, while the styling might not be to everyone's taste, it does provide unique open-top, four-seater motoring at an unbeatable price.

Wonder if he's sold any in Skoda's homeland?

You can see the complete range of Banham kits at www.banhamco.uk.

—Graham Bell

"You might be a kit car person if...your wife has ever said 'Come move this transmission so I can take a bath.'"

FOR SALE

COBRA COMPANY

OK, maybe you've built a few Cobra kits, and you think you can do one better yourself. But why go through all the hassle of developing the body molds and chassis design, when you can simply buy the whole kit (sorry) and caboodle? Paul Bennett has been offering a first-class, race-quality Cobra replica for a number of years, but he says he's getting a bit long in the tooth now and that he'd like to find somebody who's younger and more enthusiastic to buy his business. We've been to his shop in Northern California, and he builds an extraordinary space-frame chassis that uses both custom and late-model Porsche components. To make your best deal, contact Bennett at 3385 Enterprise, Hayward, CA 94545; 510 782-0705.

BUGGY REVIVAL

With fiberglass kit car pioneer Bruce Meyers jumping back into the dune buggy business in a big way, there seems to be a resurgence of interest in these sand-hopping cars. Berrien Buggy offers three kits consisting of body, hood, and dash components, and lots of optional things such as hardtops, side pods, and fiberglass floors. The company also offers a couple of custom square-tube chassis on which to build its

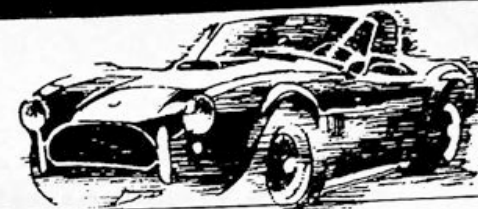
buggies, or bolt to a rusting Beetle. The Berrien chassis come standard with brackets for pedal, master cylinder, front brake hoses and e-brake, shift tube, etc. The Nostalgia chassis is available with a choice of link-pin or ball-joint front-end and either swing axle or IRS. For more details, contact Berrien Buggy Inc., Dept. KC, 10644 U.S. 31, Berrien Springs, MI 49103; 616/471-1411; e-mail: berrienbuggy@qtm.net.

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Summit Racing Equipment, the nation's largest mail-order and Internet supplier of high-performance automotive and truck parts, has entered into a multi-year agreement with the National Hot Rod Association (NHRA) to sponsor the first annual SummitRacing.com Nationals in Las Vegas. This year's race, the fourth of 23 national events in the \$45 million NHRA Winston Drag Racing Series, will be held April 6-9 and will be shown on The Nashville Network (TNN). The event will be held at a brand new dragstrip being constructed by the Las Vegas Motor Speedway.

Summit Racing is using the new event to market its online business at www.summitracing.com, which features thousands of in-stock automotive and truck performance accessories, all available for same-day shipping. Summit Racing's Web site also features automotive technical information and how-to instruction articles. The site's Drag Race Central section has up-to-the-minute results and news posted live from all NHRA and IHRA national events, through an exclusive long-term partnership with the award-winning FastNews Network, a motorsports news organization.

BRANDA Shelbys & Cobras



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XXLG available\$14.95 ea.



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A. Cobra B. GT-350 C. GT-500 D. Mustang E. Ford
NOTE: Applications now available for Chevrolet steering columns.

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1965-66 Shelby/Mustang GT 3 1/2" Lens. Tailbot Jr. Look-a-like.....\$32.95

Same as above, only with longer 4 3/4" base.....\$34.95 ea.
Triple Chrome Plated. These are great for other Ford Powered cars also.

Powered by Ford Side Emblem

Used on fenders of small block Cobra Roadsters.....\$16.95 ea.

427 Ford Cobra Side Emblem

Used on fenders of big block Cobra Roadsters.....\$16.95 ea.

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Exact repro of the 2" dia. round red, white, blue Cobra emblems used on later 289 and 427 Cobras.....\$14.95 ea.

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• 351 "Cleveland" (high capacity). Cobra lettering and fins on both sides. Fits Mach 1, Boss-351, street rods.....\$424.95
• 351 "Windsor" (high capacity). Cobra lettering and fins on both sides.....Call for Availability
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429/460 Cobra Oil Pan

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XXLG\$59.95 ea.

Shelby/Cobra Tie:

Dress in the Shelby Fashion. Speeding images of the great Shelby (Shelbys, Cobras, GT40) cars come to life in the artwork of renowned automotive artist Dennis Simon. These luxurious 100% silk neck-ties in shades of blue and dark red will look terrific with your best suit or denim shirt. If you say you don't wear ties, then you haven't seen this one.....\$28.95 ea

Cobra, Shelby, "FE" Big Block Valve Covers

Natural finish Cobra 427 finned alum\$204.95 pr
Natural finish LeMans finned\$204.95 pr
Natural finish Cobra 428 finned\$204.95 pr
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◀ Chrome plated pent roof 427\$110 pr
(on special: Regular list price: \$149.95)



New Color Posters

1. Competition Ford GT 40: The Ford that beat Ferrari, beautiful 24 x 36" full color. Factory Gulf Team Car. Light blue with orange\$9.95ea.
2. Cobra "Daytona Coupe": 1965 World Manufacturers champion. CSX 2300, one of 6 built, Carroll Shelby owner. Beautiful 24x36". Blue with White\$9.95 ea.
Shipping fee: \$4.00 for one or both.



Cobra Aluminum Valve Covers

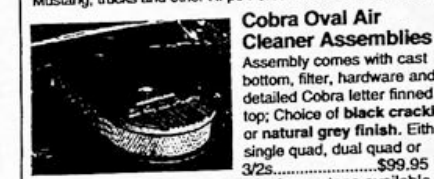
Small block 260-289-302-351W 1966-70 polished fins with Cobra

Powered by Ford, black crinkle finish with solid letters\$109.95 pr
1965-66 polished fins with Cobra Powered by Ford open letters, natural finish.....\$184.95 pr.



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SPECIALTY SCENE

JPR CARS TO BUILD GATSBY AT CARLISLE SHOW

JPR Cars has announced it will be building one of its Gatsby Cabriolet neoclassics during the three-day run of the Carlisle Import-Kit/Replica Show May 19-21, as they did at last year's venue. The company is looking for partners in this endeavor, ranging from donor car to aftermarket components. For more information, contact JPR, 888/4GATSBY, or visit the Web site: welcome.to/gatsby.

The company is also sponsoring a new club, the Virginia Kit Car Club, and is looking for any owners/builders of specialty cars in the state to join. JPR is also involved with the Great Gatsby Club for owners of that marque. Search for its Web site at www.freeyellow.com/members5/gatsbyclub.

Success always occurs in private,
and failure in full view.

MARK YOUR CALENDAR

April 12-13: 2nd Annual Spring Classic Swap Meet and Show, Englishtown, NJ. Show, swap meet, and racing. Contact Raceway Park, 732/446-7800.

April 14-16: 18th Annual Spring Englishtown 2000 Swap Meet and Show, Englishtown, NJ. Swap meet and show. Contact Raceway Park, 732/446-7800.

April 23: San Diego Stadium Auto Swap, Show and Sale, Qualcomm Stadium, San Diego, CA. Trophies, refreshments. Info: 858/484-9342 or www.carsnet.com.

April 29-30: 21st Annual Fun Under the Sun, Knott's Berry Farm, Buena Park, CA. Conducted by the Association of Handcrafted Automobiles. Show, banquet, awards. Info: Rich Crist, 310/838-4436.

May 19-21: Carlisle Import-Kit/Replica Nationals, Carlisle Fairgrounds, Carlisle, PA. Show field, manufacturers, seminars, car corral, and swap meet. Event Hotline, 717/243-7855.

May 19-21: Goodguys 11th Great Lakes Nationals, Berrien County Fairgrounds, Berrien Springs, MI. Customs, classics, and musclecars through '72. Info: 925/838-9876.

May 20: 14th Annual Kit Carsun Roundup, Hilton Hotel, Oklahoma City, OK. Show. Sponsored by the Oklahoma Kit Car Club. Contact Tom Kuritz, 405/672-4107.

June 1-4: 9th Annual Midwest Fiero Regional/Dell's Run, Chula Vista Resort, Wisconsin Dells, WI. Car show, vendor displays, road rally. Contact Jim Hallman, 630/305-9806.

June 2-4: Carlisle All-Ford Nationals. Swap meet, car corral, manufacturing area, show field, drag racing. Event Hotline: 717/243-7855.

July 9: 3rd Annual Club Sandwich Central Kit Car show, City Park, Collinsville, IL. Show hosted by Greater St. Louis Kit Car Club. Contact Don Shank, 618/344-5698, or email at shankT55@aol.com.

June 9-11: Goodguys 12th Hot Rod Nationals, Indianapolis Raceway Park, Indianapolis, IN. Customs and classics through '64. Racers through '72. Info: 925/838-9876.

10 KIT CAR MAY 2000

BOOK REVIEWS

By Harold Pace

How To Build A Custom Car By Paradigm Manufacturing

Based on a car Gary Lee built from scratch, his company, Paradigm Manufacturing, has published a manual chock full of ideas, tips, and tricks for anyone wanting to build a car from the ground up. The book covers such topics as donor cars, creating a body with foam and plywood, electrical system, and finishing the body. Lee's car shown here uses a Cadillac Eldorado front-wheel-drive system placed in the mid-engine position, and the front suspension clip from a Chevy Monte Carlo. The discussion applies to virtually any type of car you can dream up, and it approaches such a project in a very logical, planned method, complete with required tools, materials, and safety concerns.

Contact Paradigm Manufacturing, Dept. KC, P.O. Box 11805, Glendale, AZ 85318-1805; www.paradigmmfg.com.



Montezuma's Ferrari

By B.S. Levy

When Burt Levy unveiled his first novel, *The Last Open Road*, in 1994, it was greeted with a chorus of rave reviews from the sports car press. Not only did it tell the story of the beginnings of sports car racing in America in the early '50s, but it was a really great novel as well. The characters, led by mechanic Buddy Palumbo, jumped off the page and raced past without the technical lapses and unbelievable feats of derring-do that have doomed most "literary" sports car novels. Finally, Levy has released an engrossing sequel, which breaks new ground by being at least as good as, if not better than, the esteemed original.

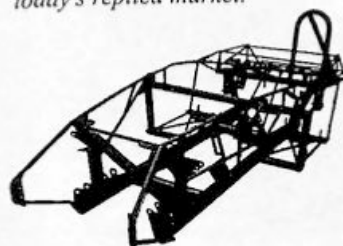
Montezuma's Ferrari takes Palumbo from the cramped passenger seat of a shrieking Ferrari 212 coupe on the treacherous high-speed mountain passes of the '52 Carrera Panamericana in Mexico to managing a racing team on the rough, flat airport runways of Sebring. We meet a colorful cross section of characters, both real and imagined, who bring those glorious days to life. Levy even takes time out from the racing to give us a glimpse into the social milieu of the times, including a hilarious trip to a beatnik party in Greenwich Village and a grating description of Buddy's star-crossed engagement to the temperamental Julie Finzio.

The kit car hobby has been instrumental in keeping many of those glorious early sports cars alive and affordable to those of us with non-Gatesean incomes. The Porsche 550 Spyder, MG-TD, Jaguar XK-120 and C-Type, Allard J2X, and the Mercedes 300SL have all been replicated in kit form, and the originals are featured in this novel. Anyone with an interest in classic racing cars of the past and the events that made them famous will love *Montezuma's Ferrari*.

Available from Think Fast Ink, 708-383-7203, or check out their Web site at www.lastopenroad.com where you can buy both of Levy's books, as well as T-shirts and other items. ISBN No. 0-9642107-1-1; \$30.

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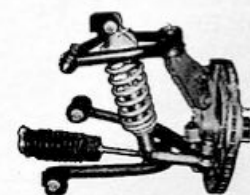
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The Factory Five Racing 427 kit comes complete with everything you need to build your replica except a single donor Mustang 5.0. To find out more about our kits, visit our website at www.factoryfive.com or call (508) 291-3443 between 9:00 am and 5:00 pm EST. You can send email to F5R@ultranet.com or reach us at our website at www.factoryfive.com. Mustang and Cobra are registered trademarks. Factory Five Racing, Inc. is not connected to the holders of these marks.

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SHOW-OFF



ONE-OFF

Martin McGlamery • Melbourne, FL

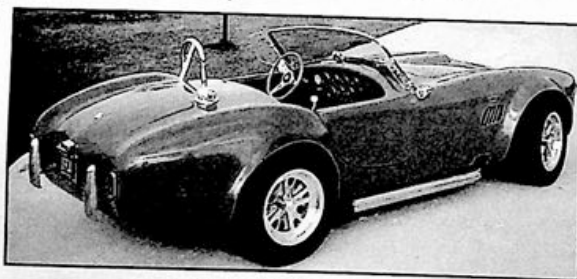
Mr. McGlamery took a different approach to a Fiero rebody by designing and fabricating panels to alter the car's looks without having to remove any of the original bodywork. His cost to convert the Pontiac was about \$1,000, a paltry amount considering the cost of kits on the market. The disguise panels were made of foam-filled fiberglass panels bonded to the existing body. He calls it "Ferrario."



ANOTHER ONE-OFF

Jamie Gilliland • Ontario, Canada

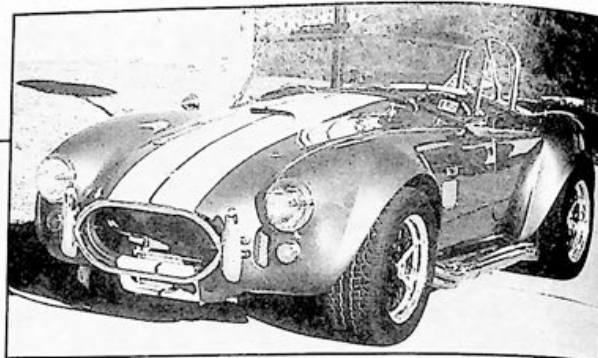
Called an F-40 Daytona, Mr. Gilliland created this one-off car based on an '88 Chrysler Daytona. The car retains its stock running gear, glass (with the exception of the rear window), doors, and other stock gear. Mr. Gilliland's Daytona has gullwing doors, tilt front end, 16-inch Borbet wheels, a Fiero decklid, and a built-in television.



OUT OF STORAGE

*Lewis Payne
Pewaukee, WI*

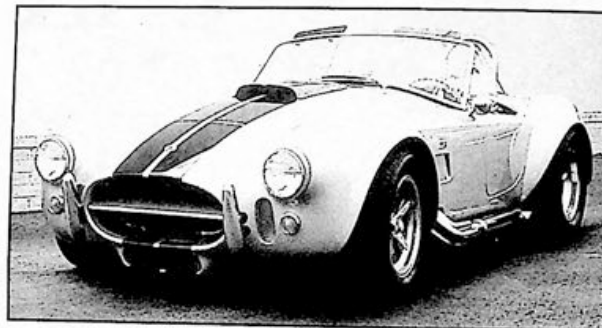
Mr. Payne's Snake is a CMC model purchased in 1992, then promptly stored for an extended time. Sure, some of the parts were missing, but that didn't stop him from finally completing the car recently. The powerplant is a '90 Mustang GT coupled to a T5 transmission. The Snake sports Stewart-Warner gauges, PS Engineering wheels, BBK control arms, Mallory fuel pump, Hypertech chip, and a host of other go-fast goodies.



PRO BUILT

Robert Grossman • Pittsburgh, PA

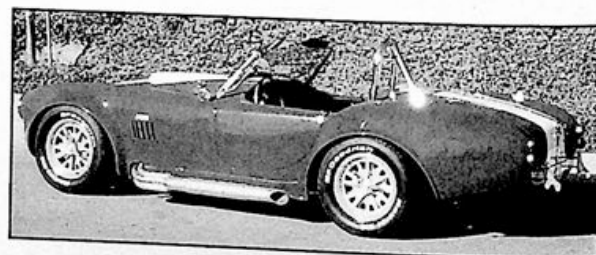
Everett-Morrison built Mr. Grossman's Cobra replica and fitted it with a '68 428 Cobra Jet big-block built by Mark Brewer of Motorworks in Greensburg, Pennsylvania. Mr. Grossman told us of his exhaustive search for just the right car and emphasized visiting the factories, as we always encourage. He also spoke with nearly 75 owners around the country as he was narrowing his choices. The car is loaded with performance goodies and "...is a real screamer."



ANOTHER PRO BUILD

*Dwight Walters
Buda, TX*

The pros at ERA built Mr. Walters's Snake with the heartbeat of a monster. The rare 427 SOHC (Cammer) motor was brand new in the crate without engine time other than on the dyno. The dyno numbers indicate 600 hp on pump gas. Mr. Walters chose ERA for their experience installing the rare Cammer motors in Cobra replicas along with their quality build level.



5.0 SNAKE

Tim McCabe • Mission Viejo, CA

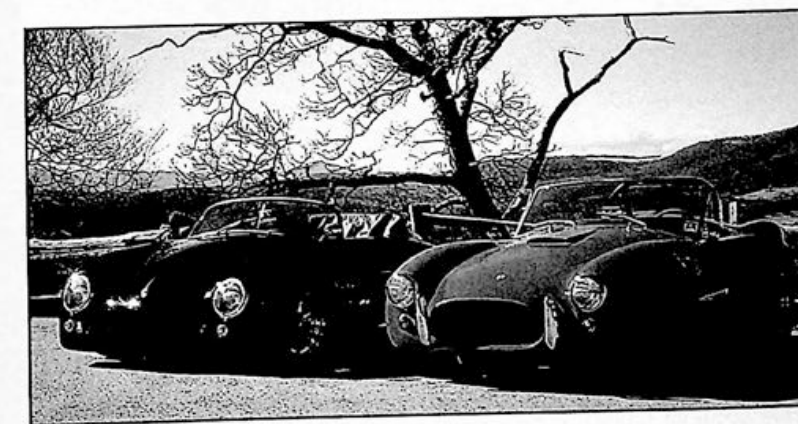
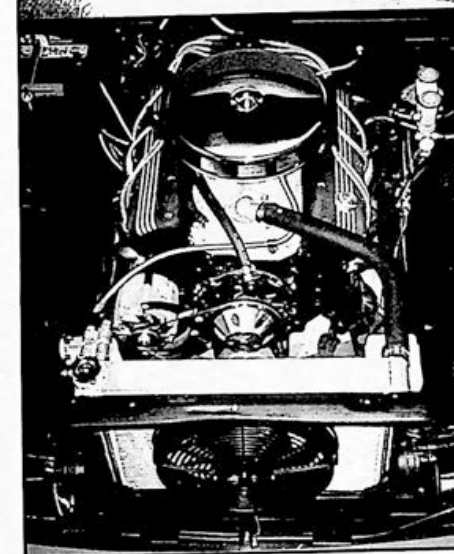
Tim McCabe, a man of few words, sent along some photos of his Factory Five Racing Cobra replica. It appears nicely finished and is doubtless a great source of pride for its owner. The car was built utilizing a 5.0 Mustang donor and has all the right elements to turn heads on the boulevard and match burnouts with the best performance machines on the street.



LITTLE GTO

*Dick Goodman
Rochester Hills, MI*

Finally finished, Mr. Goodman's Alpha One GTO kit, purchased from Joe Alphabet, is stunning and at the same time powerful. Built on a '71 Datsun 240Z, the car is powered by a 365hp 327 Chevy bolted to a T5 transmission. The engine is outfitted with plenty of go-fast goodies, and looks as good as it runs. The interior of the car was completely updated and features a replica of the '62 Ferrari GTO dash, complete with Stewart-Warner gauges, including a 5.25-inch tach and speedo.



QUITE A PAIR

David and Jack Thompson • Boone, NC

Why settle for just one kit project? The father and son Thompson team undertook two projects simultaneously and have just finished both cars. The Cobra replica is an Antique and Collectibles kit and the flared Speedster is from Fiberfab. It must have been a great father and son bonding experience.

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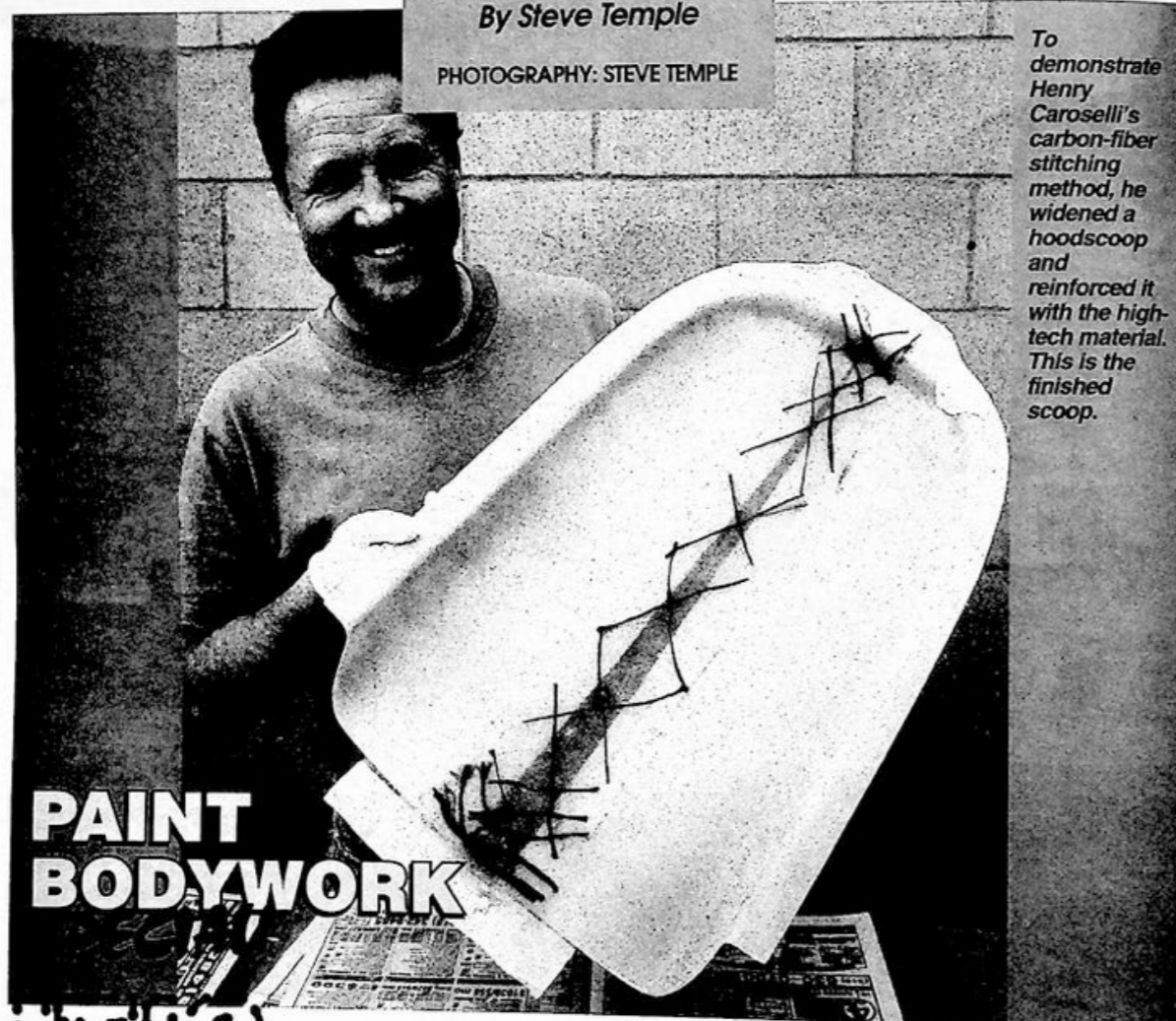
KC

How-To A STITCHER ON THREDS

Using Carbon-Fiber Stitching to Improve Fiberglass Mods and Repairs

By Steve Temple

PHOTOGRAPHY: STEVE TEMPLE



To demonstrate Henry Caroselli's carbon-fiber stitching method, he widened a hood scoop and reinforced it with the high-tech material. This is the finished scoop.

PAINT BODYWORK

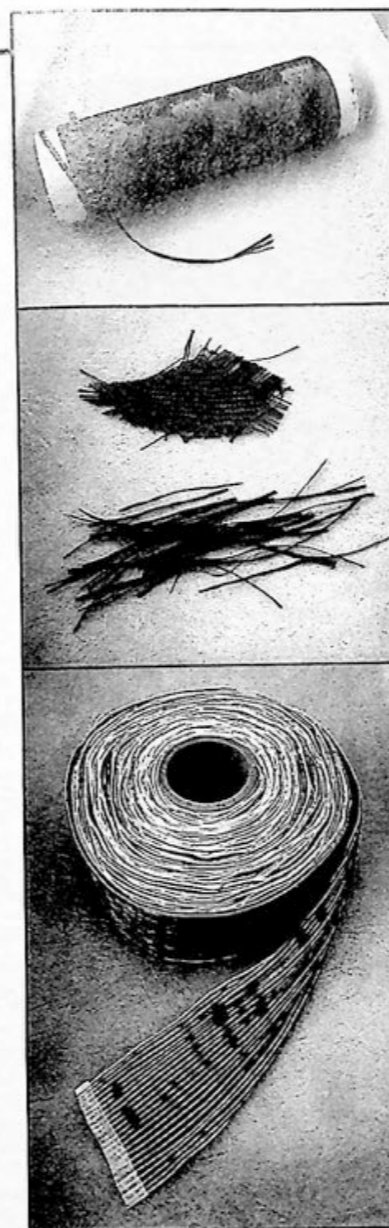
It's only pencil lead, soft and pliable by itself when in the form of strands. When you embed carbon fiber in resin and fiberglass, though, it becomes a chemical weld, as strong or stronger than 1/4-inch steel plate or rod. That's why this amazing, high-tech material is found in tennis rackets, golf clubs, Formula cars, sailboat masts, and even stealth aircraft wings. How can

the kit car builder benefit from carbon fiber's tremendous strength and light weight? Making an entire car body out of it is the ultimate, though expensive, approach.

How about for smaller projects such as reinforcing high-stress areas like edges, repairs, or modified pieces? Henry Caroselli of Caroselli Design (manufacturer of the Rodster rebody for the Chevy S-10 Blazer) showed us how with his carbon-fiber stitching technique. He says this simple

method is so effective that it's stronger than the surrounding material. He also employs a similar technique in the lay-up of his Rodster bodies.

In certain high-tech applications such as aviation, epoxy resin is used to maximize the tensile strength of carbon fiber. That is certainly the ideal combination, but not too practical for kit applications because epoxy is much more expensive than polyester resin, and harder to work with since it takes much longer to cure.

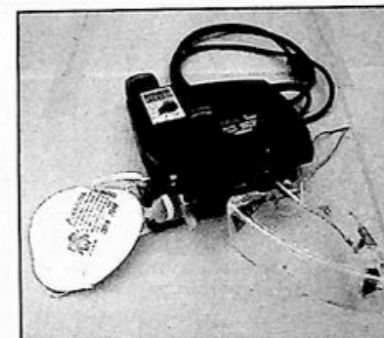


Carbon fiber is available in several forms. Shown here are individual strands (which we used for the stitching project shown here), woven cloth (for covering broad areas), and unidirectional tape with S-glass (for reinforcing specific sections).

Several hybrid polyester resins have come on the market in recent years that are less expensive and more appropriate for use on kit cars. Note, too, that carbon fiber is also relatively expensive—about \$65 per yard—but you don't need very much to do the job. Just a few strands in a small part can make a big difference. Although we're showing you how to use it when widening a hood scoop, this same technique could just as easily be used to flare some fenders or repair a crack.



Laminating resin is the better choice for this type of project to ensure sufficient strength. Sanding resin is better as a follow-up layer to fill voids and create a smooth surface, and finishing resin is for the final topcoat. For accuracy, use a measuring bottle when mixing in the catalyst. A little goes a long way, and you have to use it sparingly in hot weather and/or direct sunlight.



When cutting fiberglass, don't ignore basic safety gear such as goggles and a dust mask. A carbide blade will slice through much more quickly and with less pressure, too. Hold a vacuum cleaner hose next to the cutting blade in order to minimize airborne debris and dust.

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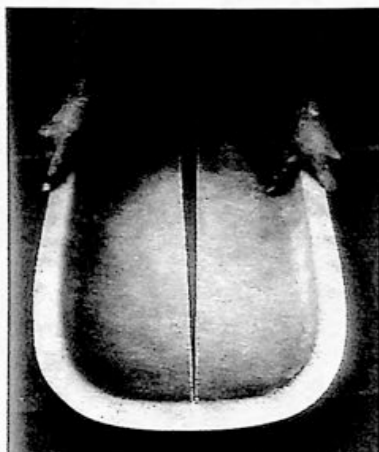


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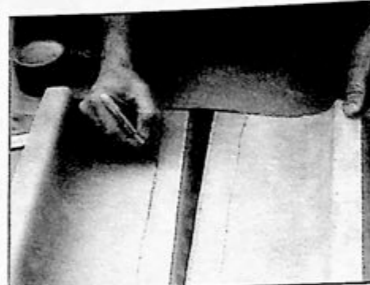
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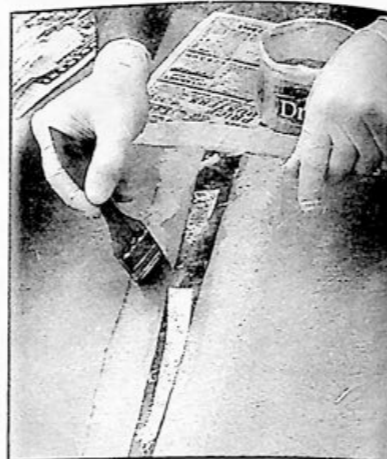
How-To



If possible, leave a portion of the piece to be modified intact. This makes it easier to work with the piece and keep its proper shape.



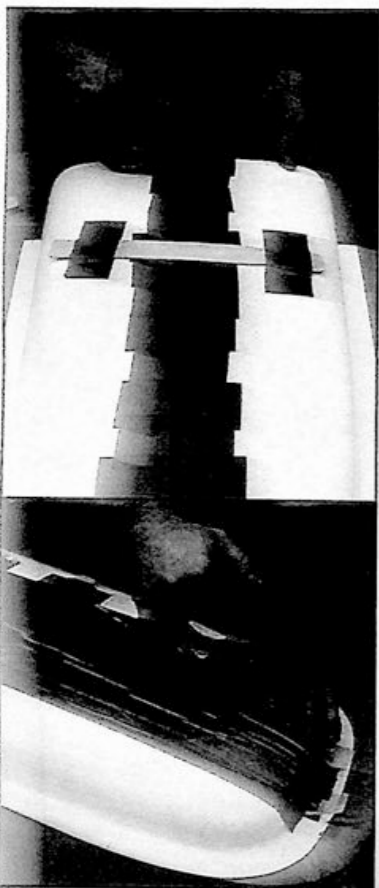
Use a felt-tip pen to mark the area that will be covered with resin, fiberglass, and carbon fiber. Even though laminating resin tends to eat into a cured piece of fiberglass, it's a good idea to rough-up the surface with coarse-grit sandpaper in order to remove dirt or oil, and also to open up the pores of the surface for better bonding.



Ideally, the resin-to-glass ratio should be about 60/40. Use as much fiberglass as possible, because that's what provides strength.



When sanding, feather the edges a bit to eliminate hard corners which can interfere with a smooth lay-up.



A&B Red plastic construction tape makes a good backing surface. It stretches to fit, and easily sticks to fiberglass. Masking tape is OK to use as well, if you apply some wax to it as a release agent. Use paint sticks and duct tape to reinforce the backside of the red tape.



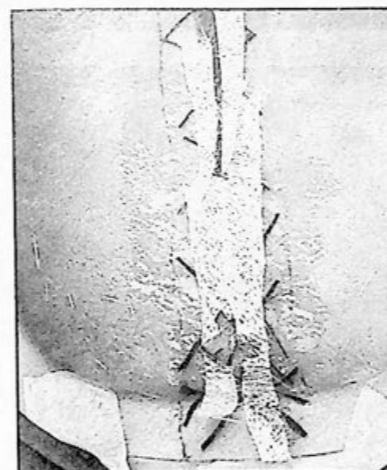
Cut about three times as much three-ounce mat as you think you'll need. You don't want to run out and try to cut more pieces while you're working with sticky resin. If you have any left over, you can always use it on another project.



While the resin is still wet, lay in X-shaped strands of carbon fiber. Use extra strands at the ends and other high-stress areas.

SOURCE

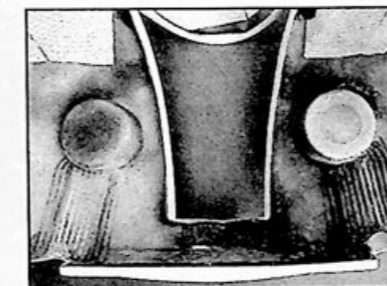
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Be sure to sandwich the carbon fiber between layers of mat. Carbon fiber develops its strength when it's part of a laminate.



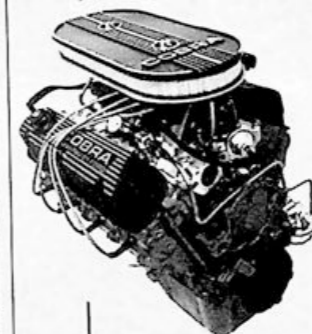
Finish off the section with a layer of 3- to 10-ounce cloth. Be sure to wet out the fiberglass thoroughly with resin until it becomes translucent. Once this section cures, remove the tape and grind down the excess on the reverse side.



Note the addition of carbon-fiber cloth and strands in the lay-up of the Rodster nose.

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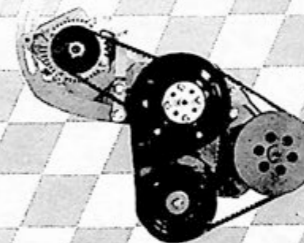
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quin·tes·sen·tial (kwint-sen-shel) adj. being the purest or most characteristic.

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What Kind of Cobra Replica Does a Cobra Parts Supplier Drive?

By Joe Greeves

PHOTOGRAPHY: JOE GREEVES

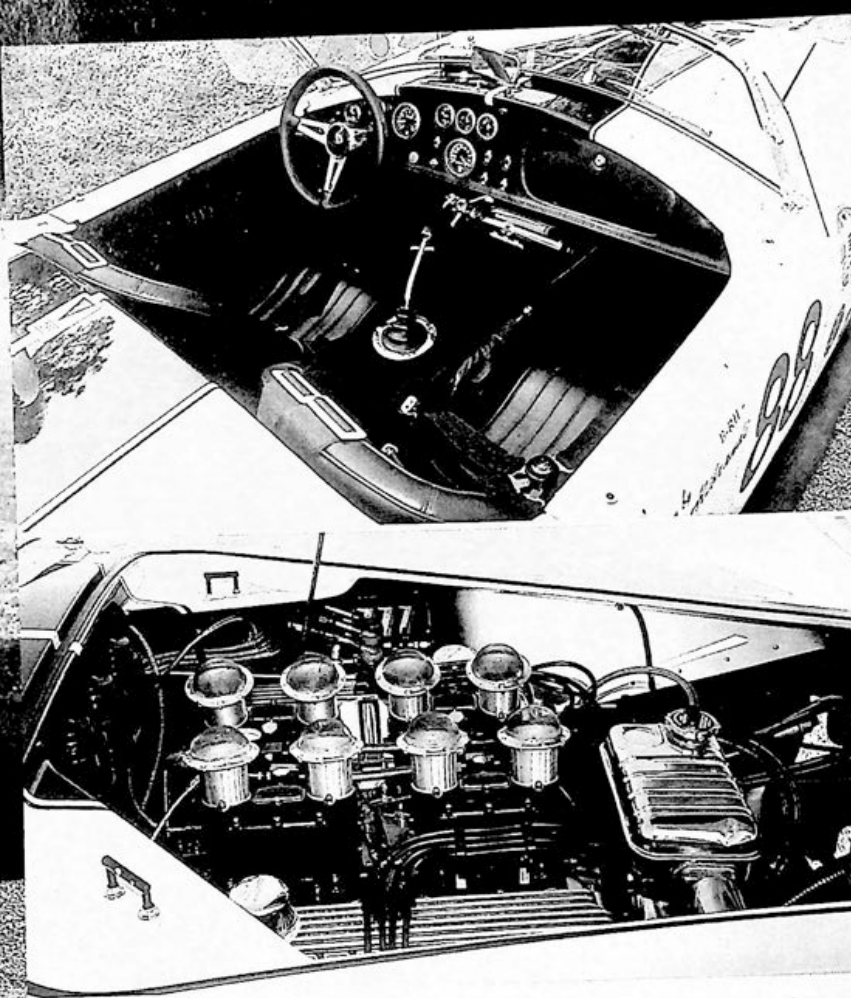
Like a lot of people in our business, Enzo Albano has the best of both worlds. His work is his hobby and he gets to play at it every day! Owner of Finish Line Moto Lita USA, Enzo is the distributor for Moto Lita steering wheels and just about every OEM Cobra part you can think of. His passion for high performance cars, Cobras in par-

ticular, qualifies him to advise the customers who call him with questions about finding the better parts. Enzo not only has a lot of his own and assisted with many more in many ways, works and what does? When it comes to constructing a Cobra replica, obviously, when you have this kind of experience and background, your personal car can become a masterpiece. Since he's in the Cobra business, with a wealth of knowledge, Enzo manufactures many a when he's necessary. He was impressed with both the quality and responsiveness of Tampa-based Formula Motors and used them to help him.



ENZO'S

TRACK STAR



original small-block car and his current 427 Cobra. The basic package included an authentic, jig-welded, 4-inch round-tube chassis, with a choice of four different suspension packages. Enzo has always been impressed by the fully independent Corvette suspension, and chose it for his car, calling it "one of those perfect engineering combinations." All of the suspension pieces were updated to include new shocks, universal joints, rotors, pads, and calipers. Steering combines Corvette rack-and-pinion with a Mustang column. He used a Dana 44 rear with 3.54:1 gears, a combination strong enough to handle the awesome powerplant scheduled for the car.

The '67 Ford 427 FE Side Oiler is equipped with medium-riser heads, MSD ignition, LeMans rods, a steel

crank, Keith Black 11:1 flat pistons, an aluminum water pump, four Weber 48 IDA carburetors, a high-capacity oil pan, and Everett-Morrison stainless steel headers. Engine builder Lyman White assembled the motor, match-porting and polishing the heads, intake, and exhaust. The engine was completely torn down, checked, reassembled, mated with the four-speed Top Loader transmission, painted, and installed in the chassis. Once he was sure everything fit, Enzo built a temporary panel with all of the necessary gauges and switches so that he could run and tune the engine, checking everything before the body was mounted.

The Everett-Morrison 427 SC, chopper gun body is reinforced at stress points with tri-axial glass fibers, and has the major inner panels including the cockpit foot-box

assembly, trunk box, and front wheel inserts, laminated into place before the body is released from the mold. To ensure the perfect, Lexus-style gaps in the doors, hood, and trunk, Enzo installed all of the weatherstripping, hinges, and latches, and glassed over all of the seams. Fort

Lauderdale paint-shop owner Robert Glasson smoothed the car with the panels in place, then carefully cut the gaps and adjusted the fit until perfect. He also sprayed the PPG Mustang Yellow basecoat/clearcoat. The tapering black center stripes were aligned with a laser to ensure perfect symmetry.

With the freshly painted body joined to the powder-coated chassis, Enzo began the process of detailing the car. Eighty-four individually formed aluminum panels line the engine bay, trunk, radiator shroud, belly pan, and even the glove compartment. Although he had never done it before, Enzo learned the process by trial and error, shaping each one on his newly acquired metal brake and shear. His engineering degree and knowledge of physics led to the design of a custom radiator shroud, employing a tapering duct that accelerated the flow of air to the radiator and significantly increased engine cooling. He has retrofitted this shroud to several other Cobras with dramatic results.

The final step for the completed body and chassis was the interior. The black leather package from Everett-Morrison included door panels, dashboard, plush black carpeting, and lumbar-support seats. Enzo added a five-point, cam lock seatbelt harness, a seven-gauge Stewart-Warner package with a 180-mph reversed speedometer, a set of original pedals with AC emblems and, naturally, a classic 15-inch Moto-Lita steering wheel. But there are dozens of other interesting touches everywhere on the car. For example, the hood scoop, with its authentic array of rivets, can be removed to allow velocity stacks on the Weber carburetors. The single rollbar, bullet mirrors, quick-fill gas cap, and Lucas headlights add to the car's

authentic feel. The awesome 17-inch Compomotive wheels (10 inches wide in front, 12 inches wide in the rear, and encased in Goodyear GSC Eagle radials, 255/45 and 285/40 respectively), increase both looks and traction.

The completed car (2 years/2,000 hours) is not only a functional work of art, but is also no stranger to South Florida's racing circuits. Enzo raced the car at the Homestead track, reporting that the only car that gave him any trouble was a brand new Ferrari 355. Of course, with a name like Enzo, he may have let the Ferrari pass purely out of courtesy. Just like Detroit, Enzo uses his racing experience to improve and refine the car.

KC

SOURCES

Everett-Morrison Motorcars
Dept. KC
13206 Byrd Dr.
Odessa, FL 33556
813/920-0905

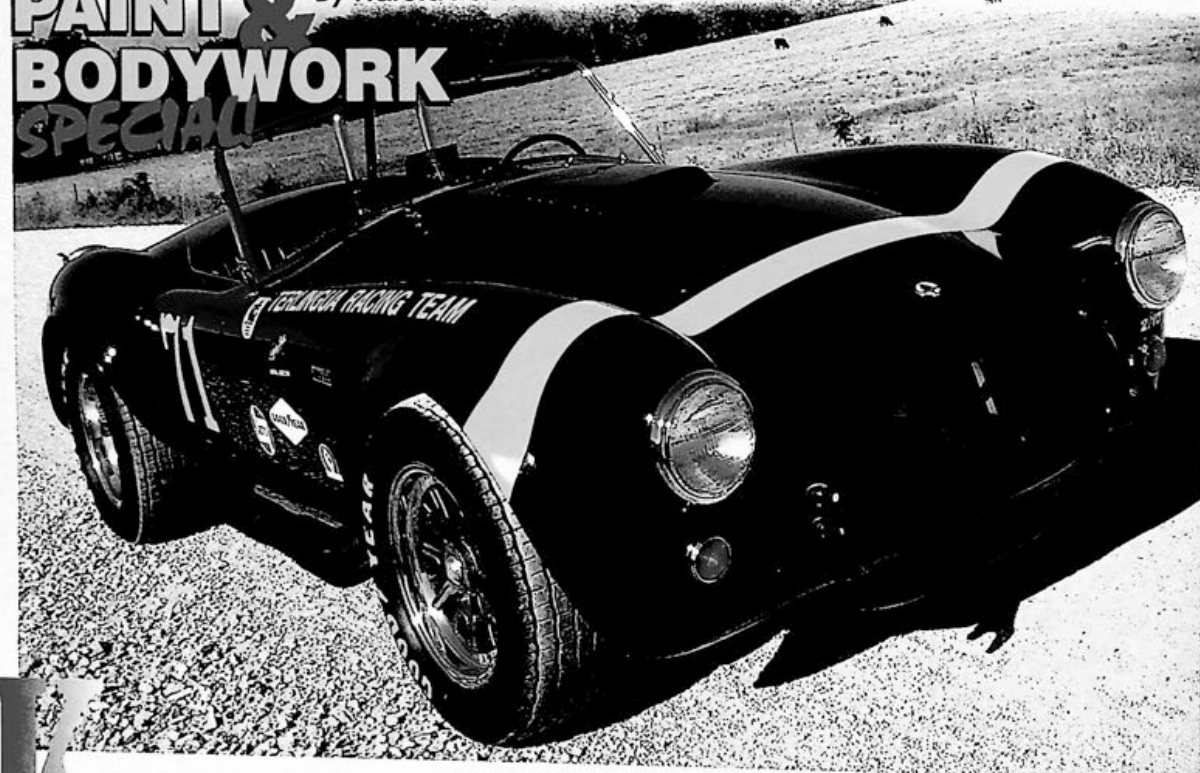
Finish Line/Moto-Lita USA
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3593 SW 173rd Ter.
Miramar, FL 33029
888/436-9113
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New Technology Helps You Find the Perfect Shade

PAINT & BODYWORK *By Harold*

By Harold Pace PHOTOGRAPHY: HAROLD PACE



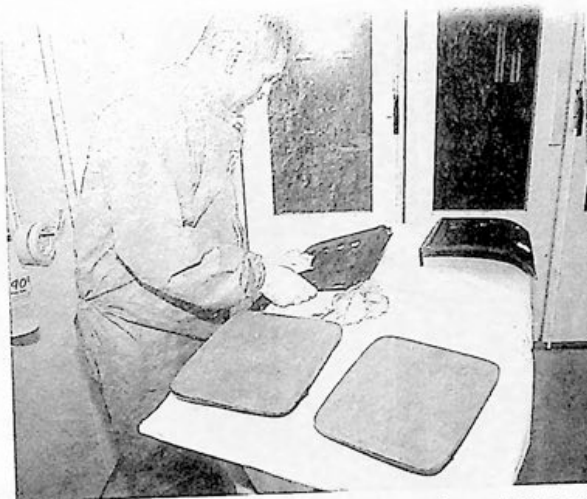
ever color the builder/buyer wants, which is very cool from an aesthetic point of view, but can present problems when touch-up time rolls around. Many kits are bought used, and the second or third owners often have no idea what specific color their car is. Mustang Yellow? Viper Yellow?



DuPont ChromaVision color analyzer is placed over a paint sample, averages three readings, and translates into a color formula.

CATTRANS - #		DU PONT FORM 100-100		IN DATE: 02 24 1994	
REF. COST: 0.00	DU PONT FORM 100-100	CHROMADIC 87C	DU PONT FORM 100-100	DU PONT FORM 100-100	DU PONT FORM 100-100
FORMULA #	COST ALT	QTY	SIZE	R #	CUSTOMER
FOURK	A	1	1		
CODE	204				
COLOR	WHT				
CAR	WHT				
MESSAGE-1	MIX THOROUGHLY SOON AFTER WEIGHING	1994-2000			
MESSAGE-2	METALLIC/SPRUECENT COLORED	> 5 GRAMS			
MESSAGE-3	VALUETHREAD 87				
WDC BASE	WDC BASE COLOR	WDC	1 QT	2 QT	3 QT
8309	MS FAST GREEN	97.0	124.0	229.0	342.0
45309	FLY CONTROL AGENT	97.0	124.0	229.0	342.0
9051	JET BLACK	122.0	244.0	488.0	732.0
20592	BLACK GREEN PPL	122.0	242.0	484.0	726.0
10048	BLUE TEAL	122.0	242.0	484.0	726.0
1109	BLUE PALEBLUE	219.0	438.0	876.0	1314.0
1761	WHITE	419.0	838.0	1676.0	2514.0

Here's the computerized formula for mixing your paint in a variety of quantities.



Everything is masked off, and small panels are laid out to make them easy to get to while painting.



A coat of sealer goes on first, starting with the doorjamb and inside fender lips.

Corvette War Bonnet Yellow? Whatever-was-in-the-gun-that-day yellow (otherwise known as "thatsanice" yellow)? How do you match your color for minor bodywork repair or an extra spoiler or two?

A related problem can afflict those who have not yet painted their kit for the first time. Kit builders can often be spotted with their heads cranking around on the freeway ogling colors on passing cars as they plan their own chroma adventure. With the wide range of new car colors available, it has become less necessary to mix custom colors to get a wild effect. Pearls and color-change paints are available in a zillion colors and sheens. But how do you know what the color is on a Z28 you spot in a car lot? Obviously, "it was a blue Chevy" is too vague a description to prevent a miscue, so you have to be more specific. Or maybe you have something non-automotive that you want to match your color to—say the current hair color of your girlfriend. Aston-Martins were once delivered in shades to match the owner's suit. Perhaps you have a favorite color that exists only on your brother's custom motorcycle, or would like to match your paint to the fabric you intend to

in the hands of the less gifted, unpredictable. To speed the process of matching colors, paint manufacturers have made great strides in the last few years, and this is a particular boon to kit car builders. To see what's the cutting edge in paint, we visited Streetwerks, a high-tech body and paint shop that has painted its share of Shelby CSX4000s, custom Corvettes, and street rods over the years. They're affiliated with DuPont as an Assurance of Quality Facility, which allows them to benefit from the latest developments in the paint industry as they take place.

When we first arrived, we were taken aback by the large number of changes that have taken place in the painting industry. Not that long ago, many custom-paint shops were dingy, dimly lit cubicles that reeked of acetone and were covered with a slightly sticky layer of half-dried enamel and fiberglass resin. Not only has the level of professionalism been raised, but safety and environmental concerns have made modern shops much more pleasant (and safe) places to work and visit. Streetwerks is brightly lit with high-intensity bulbs in the areas where bodywork is done, while the paint booth and finish-out areas are lit

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New Technology Helps You Find the Perfect Shade

PAINT & BODYWORK SPECIAL

By Harold Pace

PHOTOGRAPHY: HAROLD PACE



Kit cars have many unique problems when it comes time to squirt on some paint. For starters, plain, old, normal-looking cars are all painted with the same old, same old paint. Other

ever color the builder/buyer wants, which is very cool from an aesthetic point of view, but can present problems.

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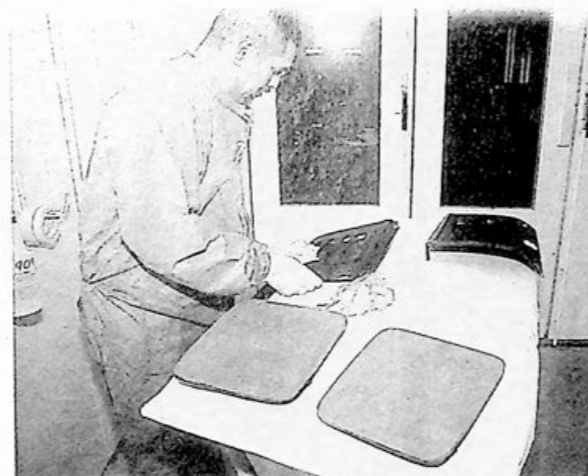
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Everything is masked off, and small panels are laid out to make them easy to get to while painting.

Corvette War Bonnet Yellow? Whatever-was-in-the-gun-that-day yellow (otherwise known as "thatsanice" yellow)? How do you match your color for minor bodywork repair or an extra spoiler or two?

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In the past, experienced, professional painters would mix paint and shoot it onto fenders, then remix and try again until the customer was happy. It was time-consuming and,



Mark goes over the body with a cloth and an air line to blow off dust and lint.



A coat of sealer goes on first, starting with the doorjambs and inside fender lips.

in the hands of the less gifted, unpredictable. To speed the process of matching colors, paint manufacturers have made great strides in the last few years, and this is a particular boon to kit car builders. To see what's the cutting edge in paint, we visited Streetwerks, a high-tech body and paint shop that has painted its share of Shelby CSX4000s, custom Corvettes, and street rods over the years. They're affiliated with DuPont as an Assurance of Quality Facility, which allows them to benefit from the latest developments in the paint industry as they take place.

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The sealer is then sprayed on the flat surfaces and allowed to flash-dry.



Mark and Gary Garton go over the sealer looking for minor blemishes before applying the color layer. Here Gary blocks down a small high spot.

COMPUICOLOR

Owner Steve Watkins showed off his new setup by directing us to the specialized room where DuPont paints are mixed. A large rack that takes up an entire wall has cans of the full range of ingredients that are mixed to create any color and type of paint desired. These include bases, colors, shades and tints, and special materials like pearls and metallics. Each of the liquids has a special top with an impeller so that, with the flick of a switch, the entire rack is stirred up for mixing at once.

Not surprising these days, there is a computer with a printer that controls the entire mixing process. Once you get past Jeff Gordon's smiling face (DuPont, remember?) on the screen saver, you get to some impressive software that allows for a closer match for repair or custom jobs than was available in the past.

If you want to match to a standard production-car color, you'll need to know the color code. Each car manufacturer hides it in a different place, but some of the most common points are under the hood, inside the trunk, or in the interior. Steve showed us a late-model BMW painted a



Mark tests his spray pattern on a flat section of paper before committing to fiberglass.



The dark purple basecoat is first applied to the rockers and jambs.

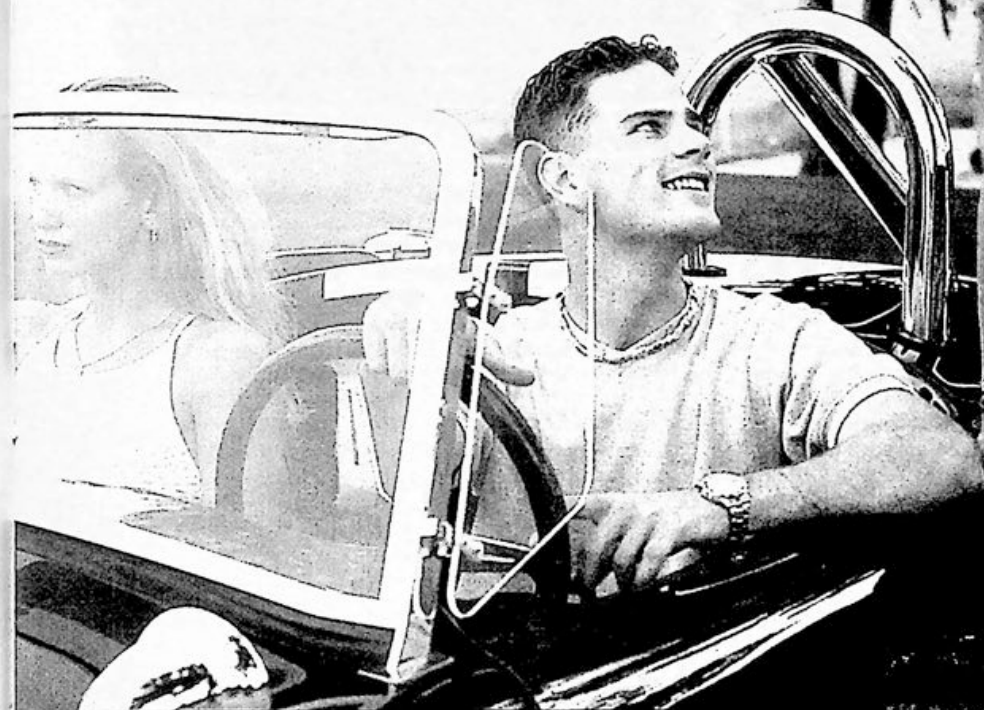
stunning dark metallic green. Trying to match that color from memory would have been impossible, but a quick glance under the hood revealed a small tag with the name of the color (in German) and a number—324/6 (the 6 refers to the interior color, so 324 is the exterior-color number). We also checked out a metallic eggplant Corvette that displayed its number in the console lid. If you've spotted a car color you like, drop by a dealer and ask the manager of the paint department where to find the color code for the model you're interested in. DuPont dealers also have charts that show where to look for the codes.

Armed with this information, you're ready to start. The first screen that pops up lets us fill in the car make and color code (the software can also match to other paint-company color codes), then gives us a printout of the weight of the ingredients needed to produce that color. From there, a can in the appropriate size for the job at hand is placed on a digital paint scale. This handy gizmo reads out the weight of the contents of the can as each ingredient on the list is added. Steve reaches for the first can of paint on the list and pours in the required amount. Then he adds the tints, powdered pearl pigments, binders, and balancers that go into making a modern urethane paint. As each element is added, the scale reads out the total weight until everything is inside. The adhesive-backed printout can



Mark lays down three coats of base over the entire car.

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... then again, not everyone has to



Fine wet-sanding follows to ensure a smooth final finish.



Finally, the paint is applied to the car body using the precision of a spray gun. Three coats of paint are applied to the car body, with an additional clear coat system in the paint booth. The finished result is a car body that is ready to be painted.



Then, the car body is moved to a paint booth where a mixing machine.

This procedure will get you a good start in the color you're matching, but if you're touching up a small paint job, you may still have some fine-tuning to do. After all, the paint will invariably have faded a bit over the years. Then, you put the paint in a gun and spray it on a test piece. This can then be held next to the original paint and checked for shading. If it's too light or dark, it's back to the computer for advice. DuPont's software makes this with a series of recommendations for getting a perfect match, even in a not-so-perfect original paint job.

MATCHING WITHOUT A GUIDE

But life's not always perfect. You have an old, faded, or even a faded paint job, and you want to be happy until your newly finished car is the color you want. DuPont has developed a digital tool for just such a situation.



Another coat of base goes over the smoothed finish and allowed to flash dry.

26 KIT CAR MAY 2000



Here, Mark finishes out the small panels.



The finished car body is then moved to a paint booth where a mixing machine.

This procedure will get you a good start in the color you're matching, but if you're touching up a small paint job, you may still have some fine-tuning to do.

INTO THE BOOTH

Color has always been a tricky business to square. It's not always the same. Sometimes, the paint just happens to have a dark purple color that's just what you need.



Mark says paint white watching the markings on the glass. The color is not the same as the original, but it's close enough to be used.

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Fine wet-sanding follows to ensure a smooth final finish.

COMPUCOLOR

then be stuck on the can before it's thoroughly shaken on a mixing machine.

This procedure will get you very close to the color you're matching. For an overall respray this is probably all you'll need, but if you're touching up an existing paint job you may still have some fine-tuning to do. After all, the paint will invariably have faded a bit over the years. Steve then puts the paint in a gun and sprays it on a test piece. This can then be held next to the original paint and checked for shading. If it's too light or dark, it's back to the computer for advice. DuPont's software anticipates this with a series of recommendations for getting a perfect match, even to a not-so-perfect original paint job.

MATCHING WITHOUT A CODE

But let's make it harder. You have no code, only an old fender/vinyl swatch/motorcycle fuel tank, and you won't be happy until your newly finished kit is the exact same color. DuPont has developed a digital tool for just such a situa-



Another coat of base goes over the smoothed finish and allowed to flash-dry.



Finally, it's time for the three clearcoats. Mark adjusts the pressure at the gun. Three coats give plenty of thickness for color-sanding and buffing. Even with an effective air-removal system in the paint booth, the clearcoat really puts out a fog. The use of a top-quality respirator is absolutely necessary.

tion called the ChromaVision Color Matching System. This is a putty-colored box containing a sophisticated color meter that will analyze any color it can be placed over. It actually takes three readings and averages them, just to be on the safe side. Then this unit is plugged into the DuPont computer and the reading is uploaded. Color Net software compares the readings in the DuPont stock code and either finds a match or creates a formula for that color.

WINGING IT

Of course, you may not have found your perfect color yet. Maybe a Porsche red is close, but a touch too orange, and you want a hint of pearl mixed in. DuPont, like most paint manufacturers, has color-chip books with small samples to pick from. Each of these chips will be referenced to a formula that the dealer can mix. However, be aware that picking colors from small chips can be misleading. Dark colors tend to look even darker in small samples and the chip may not be an exact match to what your car will look like. Take the sample chips outside in the daylight to make your final decision (fluorescent and tungsten indoor lighting can be misleading). After all, your color must look correct outdoors. Finally, ask your painter to shoot you a larger sample before signing off on the color for your final paint job. Once you have decided on your paint formula,



Here, Mark finishes out the small panels.



The final spray is over the flat sections on the top. Note Mark's technique for keeping the gun parallel to the surface. After drying, the finish will be color-sanded and buffed to remove the "plastic" look of urethane clearcoat.

be sure to save the printout so you can have touch-up paint mixed down the road, and have them mix a little extra for stone chips and such.

INTO THE BOOTH

Once the magic elixir was mixed, it was time to squirt it on some fiberglass. Streetwerks painter Mark Gallardo just happened to have a dark purple Corvette all taped up and ready to go.

KC



Mark adds paint while watching the readout on the digital paint scale. Note the "recipe" is printed out in the foreground. Paint is stored in closed containers on the back wall with a built-in stirring mechanism so that all containers can be mixed at once.

SOURCE

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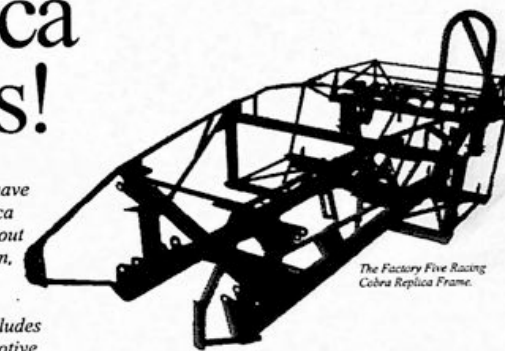
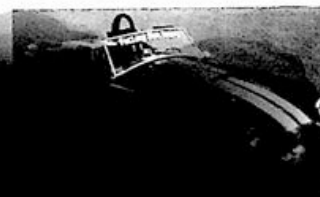
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CAVALIERE ATTITUDE



By Joe Greeves
PHOTOGRAPHY: JOE GREEVES

From the time he changed his first set of Alfa Romeo spark plugs at the tender age of 9, Italian-born Candido Cavaliere always dreamed of being a car builder. Now, the American kit car industry is helping make his dream a reality. Candido arrived in this country in 1974, and put his automotive experience to good use, becoming a GM master technician. In 1989, he bought his first kit car, selecting a sporty two-seater Healey replica from Classic Roadsters. It was to be his personal car. Obviously, the first experience must have been a good one, since it became a turning point in his life.

Now, almost 30 cars later, he has become the best customer as well as an established car builder in his home state of Florida. He has built more than just assembly cars.

He adds his own refinements, giving customers a personalized car of his own design, and incorporates their requests as well.

Candido orders the Classic chassis pre-welded to his own specifications. The compound ladder frame is exceptionally rigid, thanks to the 2x4-inch and 3x5-inch thick-wall square tubing, along with the welded steel reinforcing plates that become the floor of the car. A removable crossmember simplifies the servicing of the transmission.

Depending on the preferences of the buyer, Candido suspends the front end with either Mustang II geometry or a custom tubular front end. He uses an 8- or 8.8-inch Ford

Posi-traction rear with 3.50:1 gears, held in place with a four-link setup. The coil-spring suspension is Candido's own design, an unusual combination of soft coils to support the weight of the car, and a second set of non-loaded Monroe coilovers for bumps. Under normal conditions, the Healey rides on the main coiled springs, giving the driver a comfortable ride. Coilovers are held in reserve, coming into play during hard cornering or bumpy roads. The unique suspension, along with the wide track and 94½-inch wheelbase gives the car exceptional cornering power. Several customer cars have pulled a full "G" on the test track. Four-wheel vented disc brakes, 10½-inch up front and 9½-inch rear, along with an adjustable proportioning valve, a power booster, and braided stainless steel lines, haul the car down smoothly from speed.

Motive power varies with the customer, but Candido reports that they typically choose the Chevy 350 over Ford's 5L V-8 by nearly a three-to-one margin. He spices up the Chevy even further with a TPI L98 roller cam, a performance chip, dual exhaust with long-tube headers and Turbo mufflers, and a serpentine belt to power the high-output alternator and heavy-duty air conditioner. Zero to sixty times for the lightweight car are in the six-second range.

Standard and automatic transmissions are also available, but Candido's dual-pattern automatic has become very popular. His 700-R4 transmission can be left in Drive for shift-free driving or, for a sportier feel, you can

choose each gear with the Hurst ratcheting shift lever when you want it, rather than when the transmission is ready to shift. The combination works especially well in families where more than one person drives the car. To keep the engine and transmission cool, a high-efficiency aluminum radiator and a 16-inch electric fan adjust water temps, while a pair of transmission coolers handle the lubricants.

When the rolling chassis is complete, Candido begins preassembling the 14-piece body, holding it together with C-clamps and Vise-Grips. Once all of the pieces are fitted in place and all of the body lines are true, he rivets the components together. Then, as an extra step, he glasses them to the chassis and to one another, making for a very solid car. While Candido makes it look easy, do-it-yourself builders should plan to spend a fair amount of time on the car. The quickest assembly he's aware of took six months; the slowest, three years! He averages about three months, start to finish, but after more than two dozen cars, he no longer spends much time with the instruction manual.

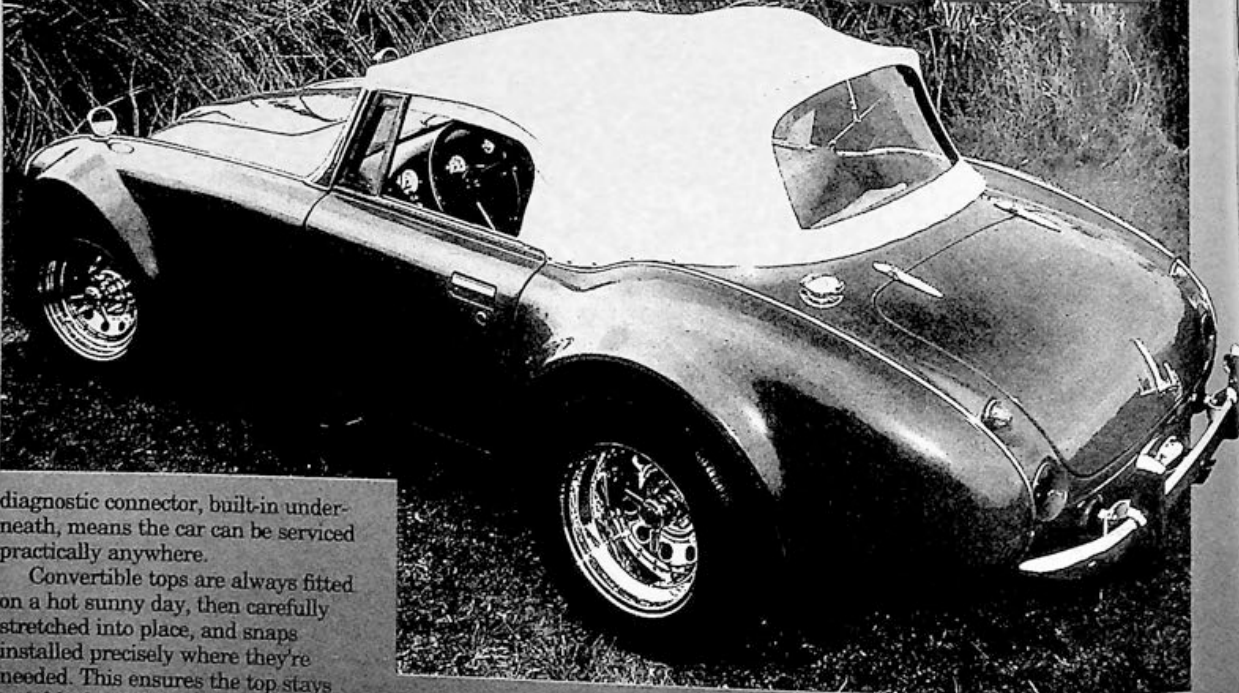
Candido adds another specialty to his Super Healey. Genuine Connolly leather seats, real walnut, oak, or mahogany wood trim, and stealth Sony/Kenwood stereo systems ensure luxury to match the car's scorching performance. A blank-face stereo is concealed in the handcrafted wood dash. The antenna is mounted underneath the fiberglass cowl (which does not block radio reception) and speakers are hidden throughout the interior. Candido even uses small sections of the rear fenderwells as sound chambers, adding resonance to the larger rear speakers. The hand-rubbed wood dash contains a full complement of VDO gauges, and the GM



A Boyhood Dream Becomes a Career



CAVALIERE ATTITUDE



diagnostic connector, built-in underneath, means the car can be serviced practically anywhere.

Convertible tops are always fitted on a hot sunny day, then carefully stretched into place, and snaps installed precisely where they're needed. This ensures the top stays wrinkle-free for the life of the car. Hardtops are also available. The practical combination of rollup windows, tight-fitting tops, and a warm heater augmented with a cold air conditioner, means Cavaliere cars are just as comfortable in the bleak winters of North Dakota as they are in the scorching summers of southern Florida. Finally, for just the right period look, the cars are fitted with Dayton 15-inch wire wheels, custom-

built to Candido's specifications, and wrapped with BFGoodrich radials. A sophisticated anti-theft system ensures the dream never becomes a nightmare.

Prices for Cavaliere's Super Healey turnkey cars range from \$30,000 to about \$38,000. Most buyers prefer the wide-track, flared looks of the Super Healey, but the flat-sided original versions and Cobras are also available. Candido builds

three to five cars a year, a number that allows him to do the kind of custom detailing he enjoys. **KC**

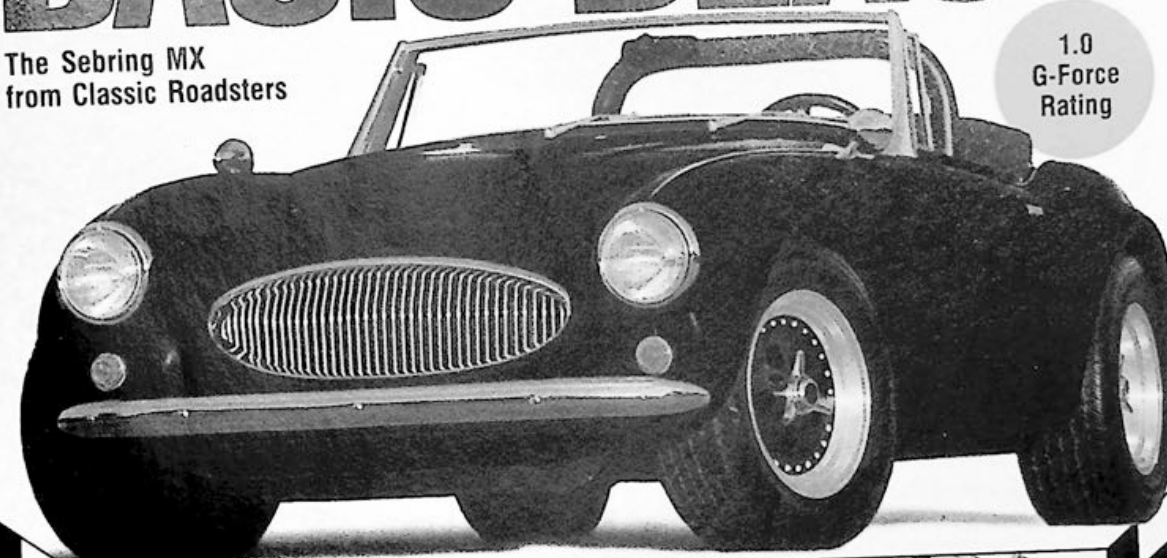
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BASIC BLACK

The Sebring MX
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1.0
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& WHITE HOT

Grinn And Bare It

By David Fetherston
PHOTOGRAPHY: DAVID FETHERSTON

Tom Reier is one of those old-time, "bugs in your teeth" kind of guys who love to add adventure to the art of driving. Tom has been a biker for years, riding an assortment of machinery but with a leaning toward BMWs. Four years ago, he read about a British kit car called a Grinnall Scorpion, based on the drivetrain of a BMW K-series motorcycle that features an integrated engine, transmission, and rear suspension.

The Scorpion was given a beaming report. Its performance was amazing and its driving-fun factor was off the scale. Now, that sounded darn interesting to Tom and it toggled a light in his brain! Here was a super-lightweight, three-wheeler sports car that could potentially blow off Porsches and Corvettes with 0-60 times of 5 seconds, get 40 mpg, run 130 mph on the top end, and cost a quarter of the price of a Euro-production exotic.

Some investigation led Tom to Grinnall Specialist Cars in England, and to owner Mark Grinnall. The story goes backward from this point for a few years. According to Mark, his father interested the company in making a three-wheeler sports car after it had finished selling modified Triumph TR7 and TR8 sports cars.

Mark and his father laid out the engineering basics and then had Steve Harper, an English automotive stylist, create the body. The space-frame design was kept very simple but extremely strong, and to confirm their design, Grinnall had Mecal Engineering in Holland perform engineering analysis on the chassis. They found the design exceeded engineering requirements for most countries including Germany's tough TUV Authority.

Using a BMW powertrain was Grinnall's flash of brilliance. BMW does not vary its designs much once they're in production, and tends to keep its engineering basics in place over many succeeding model years. Since the inline "water-boxer" engine has been around since 1983, it was a good bet that there were tons of donor bikes out there that could be used.

The car's square-section framework design is clean and race-car-like and the twin-hooped rollbars add a racy flavor. Nothing much hangs out in the breeze as the mid-engine placement of the powertrain is mostly hidden by the body and wide-set front suspension, a unique double-wishbone design that hides the coilover shocks inside the nose section. A pair of factory-supplied Ford Fiesta spindles and Cosworth brakes, along with rack-and-pinion steering, complete the front end. The rear end is a simple setup, using the existing trailing

arm on the motorcycle powertrain which is bolted directly to the car's space frame.

After talking with Grinnall, Tom set about finding himself a wrecked donor motorcycle. This actually took awhile as he wanted the most powerful flat-four BMW K-100RS model. He did find one for \$2,900 with only 16,000 miles on the clock. All he really needed was the engine, transmission, and rear suspension. The rest he sold quite easily for about \$1,000. Tom decided that having the powertrain was the first necessity, as he could easily buy the kit when he was ready. In the meantime, he got to know some other Scorpion owners through Web sites and through contacts with the company. Through this research, Tom met up with Chris Blake who built Scorpion No. 7. They hit it off pretty well and corresponded for a year on the car. Chris assured Tom that the car was an absolute blast and that he would not regret building one. In early 1998, Tom ordered his kit and it arrived from England in February 1999.

Tom opted for the "Self-Assembly Option" for approximately \$12,000 plus shipping, taxes, and customs. The kit comes with an extensive parts listing of over 200 parts and fasteners. With the arrival just around the corner, Chris offered to come out to California to help Tom put his car together. So, two weeks after the kit arrived, Chris turned up to help get the Scorpion rolling.

The pair



The Imported Grinnall
Scorpion Three-
Wheeler With the
Heart of an Exotic
Sports Car





Grinn
And Bare It

thrashed on assembling the car for nearly two weeks and, according to Tom, "I owe Chris a major thanks for his hard work. There was no way I could have gotten it done so well, so quickly without his help." Tom had already prepared the engine and drivetrain, repairing some minor collision damage, picking up a new BMW radiator-and-fan assembly, adding a sump extender to increase oil capacity, and installing a Luftmeister Kevlar clutch. With the car mostly together, Chris flew home to England, but the work continued with the help of another friend, Mark Bechtel, who does fine electrical installations and assembly work.

They continued assembling the kit, fitting and refitting, and then putting it aside until final installation. All of the bodywork was painted in Audi Silver from the factory, and it displays a nice, high-quality gloss. The fiberglass panels had to be fitted with great care as they were finished in final paint prior to installation. Once everything was drilled, pre-fitted and subassembled, Tom and Mark spent 200 hours doing the final assembly. Total turnaround time, from arrival of the kit to lining it up at the DMV for a registration, was about 90 days.

According to Tom, "The Scorpion is more fun than I could have ever imagined. Driving it is a mix of motorcycle and automobile skills, and not only does it blast off the line, it sticks to the road like a can of rolling Crazy Glue!"

The Scorpion is operated just like an automobile, with foot pedals for clutch, brake, and throttle. The gear shifter offers a car-like position but it is more motorcycle-like in operation with its sequential shifting pattern running in a straight line up and down through the gears. The interior is set up for wet weather if you should run into it. The design uses a molded GRP (fiberglass) section, with the floor featuring two drain holes and upholstery trimmed in waterproof and flame-resistant material. The dash uses the stock BMW instruments, and the steering is commanded via a leather-bound MOMO steering wheel.

According to Tom, "The Scorpion's 50/50 weight bias and its glue-like grip combine to generate an amazingly high level of adhesion

(read: lateral g-force) especially for a three-wheel car. Not only is it quick and sharp to drive, it's agile and forgiving when making directional changes in high-speed turns which would upset some four-wheel cars.

"Every time I drive this car I learn more about how snappy and alive it is to drive. Once we had it on the road, the only thing I've had to do after 1,300 miles is adjust the new clutch. The electrical system works just perfectly and it starts at the first flick of the key."

One point that Tom had not taken into account when he bought the Scorpion was just how much attention it would garner. "If you don't want to meet and talk with people, forget this car. Everyone—young, old, and in between—wants to know about it."

KC

SOURCE

Grinnall Specialist Cars

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Westridge House

Heightington

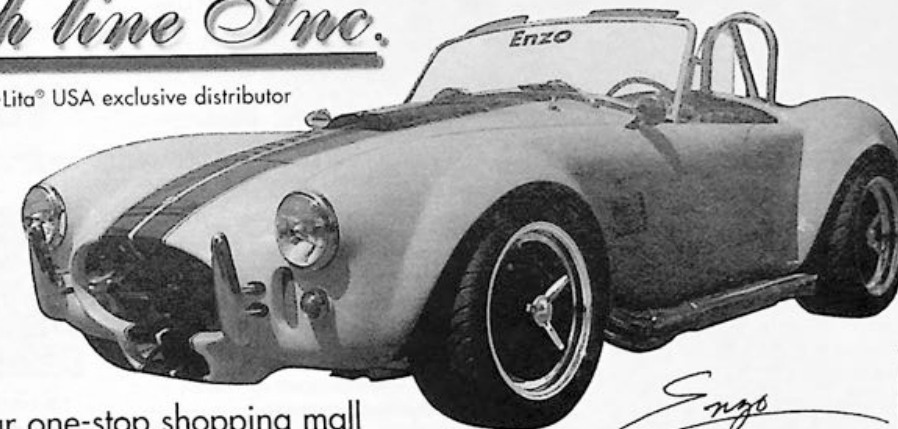
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Phone: 01144 1299 822862 • www.sunagor.com/scorpion

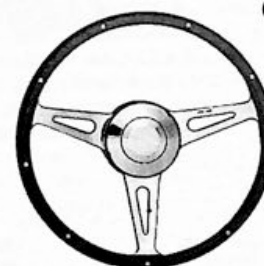
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ALTERNATIVE KITS

And Now for Something Completely Different

By Steve Temple and Truman Temple

Although you might think from the name of this magazine that our interests are confined to car kits, well that's actually not entirely true. At the risk of sounding like Dr. Seuss, we like kits of all kinds—big kits, little kits, kits that go fast, kits that go slow; kits that fly, kits that float, kits that hover, and kits that provide cover. We even like kits that dig ditches. We like kits!

You see, once the do-it-yourself bug bites you, it's hard to put a stop to it. For one thing, you can save a lot of money building something yourself. OK, maybe cost is not the only reason. There's something about the satisfaction of having completed a project, whether it's a Heathkit radio, a backyard swing set, or a turbine-powered jet. We even enjoy putting our own garage shelves together (although we've struggled with those more than we care to admit).

This section on Alternative Kits has some precedence in stories we've done in the recent past on things like kit airplanes, kit boats, and even a kit submarine. Though we're a kit car magazine, the response to those stories was quite strong and, in some cases, overwhelming for those we wrote about. Our thought is that since we're all of a homebuilt mindset, we're interested in anything that we can do ourselves. We would, of course, draw the line at home surgeries, legal kits, a kit Boeing 747, or human cloning, but things like airplanes, helicopters, hovercraft, boats, machinery, and even homes should be of interest.

Anyway, in our relentless pursuit of new and interesting kits to consume your idle weekends (hey, you didn't really want to mow the lawn, did you?), we've rounded up a passel of peculiar projects. We've always known about the aircraft kits, but even we were surprised at the range of things to build. So check 'em out, and if you don't find that space shuttle project you've been looking for, bear with us. We're working on it.



Aerocomp Planes

The company's specialty is "utility" airplanes

built of composites. Aerocomp's priorities include high useful loads, low construction times, and reasonable prices. Practically anyone with the motivation and desire can assemble one of these airplane kits.

Time to complete an airplane varies widely depending on the individual and the specifics of his/her project. Several models and factory demonstrators have been assembled in about 600 hours. Float installations will typically require an extra 50 to 100 hours.

Aerocomp Inc.

Dept. KC
2335 Newfound Harbor Dr.
Merritt Island, FL 32952
<http://aerocompinc.com>
407/453-6641



Aviat Aircraft Inc.

Aviat Aircraft manufactures the Pitts Special and Husky A-1, as well as kits for the Christen Eagle and original parts for other planes. These aircraft have been manufactured in Afton, Wyoming, since the '40s. They first rolled out of the hangars to serve the Western states' farming communities. In the '50s, Curtis Pitts designed and built the first of what was to become the world's leading aerobatic airplane—the Pitts Special. In the early years, the Pitts was available only to those who could build it from the plans or from homebuilt kits.

In the '70s, the Pitts became a Fully Certificated Production Aircraft at the Afton facility, and became accessible to all pilots.

Aviat Aircraft Inc.

Dept. KC
672 S. Washington
Afton, WY 83110
307/886-3151
www.aviataircraft.com

Aviation Products Pedal Airplanes

This company is a cottage industry based in



Cedar Rapids, Iowa, which is known as "Home of the Originals." It designs and develops pedal toy airplanes that are representative of

distinct models of popular aircraft for the do-it-yourself builder. These pedal toys are designed to be strong, safe, and enjoyable for both the little pilots and the builder. The toys have adjustable pedal crank height to accommodate the average 3- to 7-year-old child. All models utilize basic construction of 3/4-inch exterior grade plywood. Control systems are fabricated from 1-inch electrical conduit with an industrial caster for tailwheel steering. The main wheels are 8 inches, steel and rubber, lawnmower-type riding on ball bearings. Some of these models utilize part of a toy football on the nose to represent the prop spinner.

Aviation Products Inc.

"Home of the Originals"

Dept. KC
P.O. Box 8303
Cedar Rapids, IA 52408
www.netins.net/showcase/pedalplane



Big Island Package Homes

Big Island Package Homes

designs and sells owner-builder kit homes in Hawaii. The kits include windows, doors, lumber, roofing, plumbing, and cabinets. All package prices include shipping and customized plans. You can be an owner/builder and build your house on your lot with the help of a carpenter, a plumbing contractor, and an electrical contractor. Rough-in materials are supplied by the plumber and electrician.

Big Island Package Homes

Dept. KC
209 Kinoo St.
Hilo, HI 96721
808/969-2070
www.packagehomes.com



CADplans Corporation

Many people have tried to buy a backhoe or

a front-end loader, and have found the prices out of reach. Yet they still need trenches, water, or power lines installed, ditches and culverts dug, or mulch and earth moved. That's where CADplans offers a solution. Several weekends, and one can have a machine to use when the digging needs to be done, not at some contractor's whim. To keep buyers' costs down, CADplans sells only the plans, which include the photos, material lists, and video (most rodents).

CADplans

Dept. KC
P.O. Box 0606
Daleville, VA 24083
800/817-5267
www.cadplans.com



Clark Craft

Clark Craft offers the largest selection of boat plans and kits in the country. The

company has hundreds of boat designs for everything from a 6-foot rowing pram to day-sailers to sport fisherman powerboats. The designs have been used in thousands of craft built by amateur boat builders. If you have never tried such a project, consider purchasing one of the Frame or Complete Boat Kits to make it all go a little easier.

Clark Craft

Dept. KC
16-99 Aqua Ln.
Tonawanda, NY 14150
716/873-2640
www.clarkcraft.com



Cozy Aircraft Kits

According to the manufacturer,

no special skills or previous experience are required to build Cozy kits. The plans are written for the average person and first-time builder. The most important skill required is the discipline to consistently read and follow a large number of written instructions. They consist of over 100,000 words, over 1,000 illustrations and photographs, and fullsize drawings to lead you step by step. Both the three-place Cozy and four-place Cozy Mark IV use the technology designed into the Long EZ.

The company estimates a good worker can build a Cozy in 2,500 hours. Although some might think this is a long time, it's actually shorter than it takes to assemble many prefab kits or designs made from aluminum, tube and rag, and/or wood.

Co-Z Development Corp.

Dept. KC
2046 N. 63rd Pl.
Mesa, AZ 85215
480/981-6401
www.cozyaircraft.com

DreamWings Kit Planes



The company's initial family of airplanes consists of three designs: Rhapsody MK1, Rhapsody MK2, and Valkyrie. Built

with advanced yet affordable technology, these airplanes feature eye-catching design, versatility, easy construction, and low cost of ownership. With all of these advances, you'll have to keep reminding yourself these airplanes are ultralights.

Standard features for all airplanes include a basic instrument package, adjustable folding seats with four-point safety harnesses, powerful hydraulic disc brakes, differential brake steering, elevator trim, and gas-strut supported hatches and canopies. Airframe kits are priced from \$10,000 to \$16,000. Every airplane features easy removal of the canard (if equipped), wings, and tail group for convenient and low-cost off-airport storage. To reduce maintenance costs, systems are simple and parts counts low.

DreamWings LLC

Dept. KC
Lawrence Municipal Airport
2550 N. 7th St.
Lawrence, KS 66044
785/842-6526
www.dreamwings.com



Europa

The Europa Aircraft Company has grown rapidly since its formation in 1991, selling

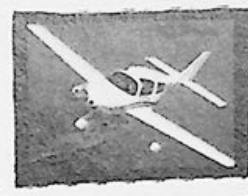
over 630 aircraft in 31 different countries. The Europa kit is designed for the first-time builder, and no prior knowledge is assumed. The plans and instructions take you in small steps through the complete project with explanations of what to do, when to do, and how to do. The instructions contain an education chapter covering techniques, materials used, workshop layout, and tools required. Before you start building the airframe, you complete the Europa wheel chock as part of the education chapter. This is designed to give you practice and confidence in the materials and techniques used. Because the Europa is an advanced build kit, we estimate that it should take between 500 and 1,000 man-hours to complete, depending on the level of equipment and finish.

Europa Aircraft Co.

Dept. KC
3925 Aero Pl.
Lakeland, FL 33811
863/647-5355
www.europa-aircraft.com

Express Aircraft Kit Planes

Originally designed and introduced in 1987, the Express series of composite aircraft offers



today's kit builder a combination of speed, beauty, comfort, and big payloads at an affordable price. With recent design and

manufacturing updates, an Express can be built by the average hobbyist in less than 1,500 hours, all with the use of normal household tools. The Express CT is the original Express that retains the smaller, sleeker cruciform tail, while the new Express Series 2000 utilizes a larger conventional tail that provides more stability for rough air transitions. Both aircraft feature large, comfortable cabins that will accommodate even the tallest of pilots and passengers. In addition, both Express models offer builders range and payload capacity combined with an airframe that you can easily build at home.

Express Aircraft Company, LLC

Dept. KC
P.O. Box 236
Olympia, WA 98507
360/352-0560
www.express-aircraft.com



Fisher Flying Products

At the company's

modern plant in Edgeley, North Dakota, the components for nine classic replicas are manufactured by trained and experienced craftsmen. Research and development for new aircraft is ongoing. Fisher Flying Products' entire line of aircraft is sold throughout the United States and in 30 foreign countries. All models are available in two build-it-yourself forms: (1) a standard construction kit, which offers the builder the experience of assembling the entire aircraft from pre-cut, shaped, and slotted wooden pieces, machined hardware, a formed fiberglass cowling, and aluminum fuel tank; and (2) a quick-build kit that contains a number of prefabricated components in addition to the standard pre-cut and formed parts found in the standard kit. Standard construction kits can be completed by the average builder in 400-500 hours, and quick-build kits reduce the construction time to 200-300 hours.

Fisher Flying Products

Dept. KC
P.O. Box 468
Edgeley, ND 58433
701/493-2286
www.fisherflying.com



Flightstar Sportplane Kits

The company currently produces

two Flightstar models and claims they are as

ALTERNATIVE KITS

complete and finished kits as you can find, with no hidden costs associated with building or ownership. If a part is mentioned in the assembly manual, it's in the kit—period. Each kit comes with new assembly manuals that are thorough and detailed. The manuals are broken out into small sections, with large, easy-to-read type and lots of CAD artwork. A flight manual and a maintenance schedule are included in the package.

Flightstar kits come complete (without back orders) and ready to assemble without fabrication of components, critical drilling, or finishing of the airframe. Basic handtools are all that's needed. The simple design of the airframe allows proper assembly by the homebuilder in an easy-to-understand manner. The airframe components are all aircraft-specification aluminum and come finished in a clear or black corrosion-resistant, anodized coating. The wing is streamlined strut braced with large-diameter, tubular spars reinforced with double sleeves and stainless bushings.

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Boat plans designed by Glen-L have been used since 1953 by amateur boat builders around the world, whether boats are built in plywood, stitch and glue, wood, fiberglass, aluminum, or steel. All of the company's boat plans include instructions and fullsize patterns to make the boat builder's job easier. The company answers questions from boat builders concerning their projects by phone, fax, mail, and e-mail.

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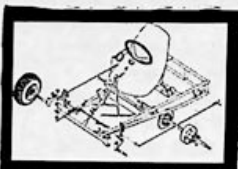


GeoDomes Woodworks

GeoDomes pre-cut, color-coded home kits have been custom manufactured and shipped to thousands of proud owners in every state in the United States and every continent of the globe, under virtually every climatic, environmental, and load condition imaginable. GeoDomes Custom Home plans range from elegant multiple-dome clusters to simple vacation

homes. There are hundreds of plans available. All GeoDomes plans can be custom-modified to meet individual needs. Fully original plans can also be developed. GeoDomes WoodWorks maintains on-staff architectural ability and has the capability to certify for all 50 states.

GeoDomes WoodWorks Inc.
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6876 Indiana Ave.
Box 4141, Division W
Riverside, CA 92514
909/787-8800
www.geodomesinc.com



Kart World

Kart World, a Division of KW Marketing, is an international

mail-order company that sells both assembled and kit go-carts, mini-bikes, all-terrain karts, and racing karts. You can also check out Kart World's trailers, quad racks, cycle racks, and more at the parent company's Web site. An 88-page color catalog is available for \$3.

Kart World
Dept. KC
1488 Mentor Ave.
Painesville, OH 44077
440/357-5569
www.kwmarketing.com
www.kartworld.com



Lancair Kit Planes

The first Lancair 200 was developed in

1984. Today, that prototype resides in the Experimental Aircraft Association (EAA) Museum in Oshkosh, Wisconsin. In the past decade, Lancair has played a key role in defining the actual character of the growing kit-plane industry; a market segment that now outsells the production market fleet by more than three to one. Today, there are more than 1,500 Lancairs sold in more than 40 countries, on six continents. Hundreds of Lancairs are flying with tens of thousands of flight hours logged. Lancair also enjoys one of the finest safety records in the industry due in no small part to the Lancair Preflight Inspection Program, First Flight Test Program, Flight Training Program, and Lancair's airframe designs.

Neico Aviation Inc.
Dept. KC
2244 Airport Way
Redmond, OR 97756
541/923-2244
www.lancair@lancair.com



Lincoln Logs Homes

Lincoln Logs manufactures

high-quality log-home kits with over 90 standard floor plans. The company's design department can also prepare custom plans for your new log home. Packages include the materials needed to build your weather-tight shelter. That includes the logs and sealant system, windows, doors, roof system, and roofing materials. You or your contractor will need to prepare the site, and build the foundation and first floor deck before your log home package arrives. You or your contractor will also be responsible for the interior materials, wiring, plumbing, and other finishing materials. Some of the company's dealers are also builders and can do a turnkey project for you. Others will be able to help you find a contractor in your area. Some customers choose to be the general contractor themselves, and subcontract out the various phases of their project.

Lincoln Logs Ltd.
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5 Riverside Dr.
Chestertown, NY 12817
800/833-2461
www.lincolnlogs.com



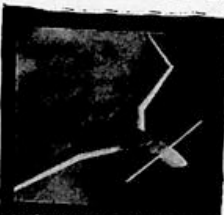
Quikkit Corporation

Building your own aircraft is the solution more and

more people are discovering to combat the high cost of owning an aircraft. Offered by Quikkit, the Glass Goose is a refined, composite aircraft available in kit form. As an amphibious aircraft, the Glass Goose opens up a whole new realm of opportunities for the sport pilot.

Quikkit Inc.
Dept. KC
9002 Summer Glen
Dallas, TX 75243
214/349-0462
www.glassgoose.com

Renaissance Composites



Berkut is a composite aircraft kit from Renaissance Composites. An evolution of the Burt Rutan-designed Long-EZ, the Berkut includes such features as carbon-fiber wings, fully

retractable landing gear, enlarged cockpit, and a fighter-style flip-up canopy. The Berkut is available as a kit with full customer support from the factory. The Berkut is a two-place tandem canard design, utilizing a Lycoming IO-360 engine developing 180-plus horsepower and cruising at over 200 knots.

With a 260hp Lycoming IO-540 installed, Berkut can cruise at 240 KTAS, flying nonstop from Los Angeles to Houston. The prototype performed in air shows around the country, featuring maneuvers pulling more than 9 g's.

Renaissance Composites
Dept. KC
3025 Airport Ave.
Santa Monica, CA 90405
310/391-1943
www.berkut.com



Rotary Air Force Marketing

Rotary Air Force

manufactures an aircraft kit called an RAF 2000. This rotorcraft is being used for recreation, ag-spraying, thermography, border patrols, sheriffs' departments for drug eradication, and is being considered for target drone, unmanned reconnaissance vehicles, and other uses.

Rotary Air Force Marketing Inc.
Dept. KC
Box 1236
1107-9th St. W.
Kindersley, Saskatchewan S0L 1S0
306/463-6030
www.raf2000.com



Rotorway Intl.

The many prefabricated components of

the Exec 162F are designed to make the kit an easy project for the first-time builder. The average build time of only 300 hours is said to be one of the lowest in the kit industry. There is no welding to be done, only minor fabrication work, and all major components are pre-assembled.

Each of the Exec 162F's smaller components is provided on detailed, shrink-wrapped cards. Each part is numbered to coincide with the construction manuals, prints, and templates. Construction manuals are in see-do style, using step-by-step photographs. The Exec 162F can be built and stored in a one-car garage. The kit was designed with the amateur builder in mind and no special tools are required.

Rotorway International
Dept. KC
4140 W. Mercury Way
Chandler, AZ 85226
480/961-1001
www.rotorway.com



The Seawind Amphibian

The versatile,

high-performance Seawind amphibian is available as a kit plane designed for ease of construction. The company believes that the building process should be an educational and satisfying experience. With its unique bonded-flange system that's said to speed assembly time with a minimum of tools and equipment, the approved Kwick Kit will allow you to construct the Seawind in about 2,000 hours, plus sanding and finishing. The cost of the Seawind is comparable to any four-place land kit plane even with its higher structural integrity.

Seawind
Dept. KC
P.O. Box 607
Kimberton, PA 19442
610/983-3377
www.seawindsna.com



SportSub

The International VentureCraft Corp. manufactures the SportSub line of

submersibles. IVC has built two- and three-person mini-subs since 1987 for use aboard yachts and in tourist operations around the world. Piloting a submarine around coral reefs, over a shipwreck, or around some rock outcroppings is a thrill that few people will ever experience. The SportSub is a semi-dry, ambient pressure submersible. Occupants are dry from the waist up in the cockpit. This allows them to breathe and talk normally without using scuba apparatus. No masks or regulators are worn during a SportSub dive.

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Van's Aircraft

At the '97 EAA Convention in Oshkosh, Wisconsin, 288 RVs flew in to celebrate the 25th anniversary of Van's first Oshkosh arrival in

his RV-3 plane. Completions now average about five per week. Since many projects were started within the past year or two, even larger numbers will be flying soon. The RV phenomenon is not restricted to the USA; builders all over the world have recognized the value these airplanes offer. RV kits have been shipped to over 40 countries, and are actually flying in 20, in such diverse areas as Greece, Australia, and Nigeria. By late 1999, more than 2,300 RV kits had been completed and flown, and at least 5,000 more were under construction.

Van's Aircraft Inc.
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10885 NW Main St.
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Velocity Aircraft Kits

Velocity Inc. was

formed in 1984 by Danny Maher in Sebastian, Florida, to develop and market a new four-seat canard aircraft, based upon the successful Long-EZ design. After the prototype flew in July 1985, several kits were sold and close contact was maintained with initial builders to get feedback in areas where the design could be and subsequently was improved. The 173 "LW" (long wing) model went on to further enhance the Velocity design. In 1997, Velocity created the big "XL" model, based upon over a decade of aircraft experience. The company introduced the "SUV," an entry-level kit, at Oshkosh 1999.

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200 W. Airport Dr.
Sebastian, FL 32958
561/589-1860
www.velocityaircraft.com



Zenith Aircraft

Zenith Aircraft Company is in the business of designing,

developing, and manufacturing kit aircraft. The independent, privately owned company was formed in 1992 in Mexico, Missouri, and is based in new, 20,000-plus square-foot production facilities at Mexico Memorial Airport. Chris Heintz, the founder of Zenith, is an accomplished aeronautical engineer. A graduate of the E.T.H. Institute in Switzerland, he worked for Aerospatiale on the supersonic Concorde jetliner, and later became chief engineer at Avions Robin (France). As founder, president, and chief engineer of Zenair Ltd. since 1974, Mr. Heintz has designed and developed more than 12 new aircraft models which have been marketed as kit aircraft around the world. More than 800 aircraft are presently flying around the world in 48 different countries.

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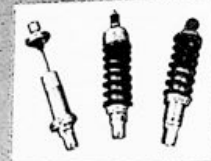
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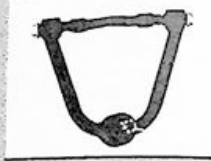
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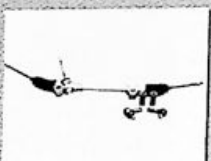
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Keith Kaucher's KIT CONCEPTS

The Snake Meets Street Rodding

'33 FIA Roadster



I'd love to see what kinds of times this car would be capable of on some road course. It might just give a whole new purpose to street rodding.

By Keith Kaucher
ILLUSTRATION: KEITH KAUCHER

One night while performing my nightly abdominal crunches, I glanced up at two of my illustrations on the wall. One was a '32 highboy and the other was a '65 Shelby GT350 R-model Mustang. Suddenly an idea struck me harder than my last crunch. "What if I combine the two and use a '33 Ford roadster as a starting point? I put pencil to paper, and within a few minutes of sketching I

knew I had something different."

The foundation of a competition roadster has to be an ultra lightweight body-and-chassis combination, an agile suspension, and a motor with explosive power. To keep weight down I chose a Gibson Fiberglass '33-'34 roadster body mounted on a Stage III Fatman IFS chassis, replacing the live rear axle with an ERA Cobra IRS unit. Koni coilover shocks are to be used on all four corners. Braking is handled by 12.5-inch Baer cross-drilled rotors and four-piston calipers. To get Cobra-like performance, a Weber-carbureted Dave Dralle-built 289 Ford small-block sits between the frame rails. The four forward gears change through a Hurst Competition Plus shifter mounted on a Bill

Thomas-prepared Ford Top Loader. Track adhesion depends on Goodyear Blue Streak road racing tires of course, mounted on 16-inch Vintage 45-style alloys.

I'd love to see what kinds of times this car would be capable of on some road course. It might just give a whole new purpose to street rodding.

Editor's Note: Keith Kaucher is a talented designer who spends a great deal of time dreaming about unique vehicles and often translating his designs to scale models. He's a consummate car guy who appreciates the kit car world a great deal since the cars are easily modified and tailored. We will be bringing you more of Keith's designs on a semi-regular schedule to hopefully give you some ideas for your own projects.

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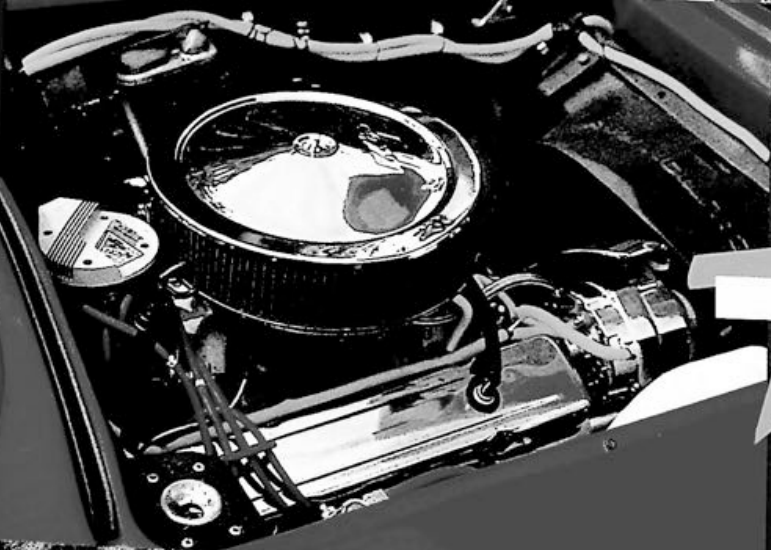
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Rule Breaker

What You Get When You Cross
a late-'50s Vintage Corvette
With a Hot Rod



By Harold Pace
PHOTOGRAPHY: HAROLD PACE

The '56 through '60 Corvettes are now considered to be among the all-time classic American cars. However, in their day they were mediocre sellers, lagging far behind the first-generation Thunderbirds. In fact, GM bean counters lobbied in the '50s to kill the Corvette dead in its tracks (thankfully, for once, they lost). The '56 Corvette had broken new ground in terms of clean styling, and the '57 model acquired performance to match with a new 283ci engine with fuel injection and the first Borg-Warner T-10 four-speed tranny. The '58 model changed to quad headlights which were loved by GM stylists, but less popular with the purists. The '58 also had a row of non-functional louvers on the hood and two chrome bumper strips that started at the rear bumpers and swept up onto the trunk lid. The public was elated, and sales improved with the '59 model which was cleaned up by removing the louvers and chrome strips. The '60 model was almost identical, and suddenly America became Corvette crazy, partially driven by the popular



TV show *Route 66*, where actors Martin Milner and George Maharis sped along the fabled highway in their '60 Corvette. For the first time, sales broke 10,000 units per year and the future of the Corvette seemed secure.

David Arthur, a commercial developer and longtime Corvette fan, wanted the classic look of the early-model Corvettes mated to modern running gear, and at a price of about half of what a new C5 Corvette would cost. No small order. Original '56-'60 Corvettes are selling in the \$25,000-\$45,000 range, and any modification for the sake of upgrading the running gear for more performance or revised appearance causes the value to drop faster than an anvil pitched off the Empire State Building. Not only that, it would incur the wrath of collectors who feel that classic cars should be maintained in original condition for future generations to appreciate. David decided to build a component car that would make the purists and revisionists happy.

Starting with a set of molds pulled off an original show-winning '59 Corvette, David and his son Robert spent three years engineering a rectangular-tube space-frame chassis that uses readily available suspension components and a 350ci Chevy V-8. They tried using late-model Corvette- and Camaro-based frames, but did not find them to be satisfactory. Their new frame has the same 102-inch wheelbase, width, and length as the original, although the body has been subtly modified in the cockpit area for more interior room. They also incorporated side-impact protection and strong firewalls for improved safety. Although other suspension options are available, the standard model is set up for Ford live axles in 8.8-inch and 9-inch sizes. The heavy-duty 9-inch live axle and IRS are optional. Up front are dual A-arm suspension pieces with Aldan coilover shocks and a custom power rack-and-pinion steering system. Weight

It would look like a classic Corvette, but would be engineered like a modern street rod. And so began the Vette-Rod project.

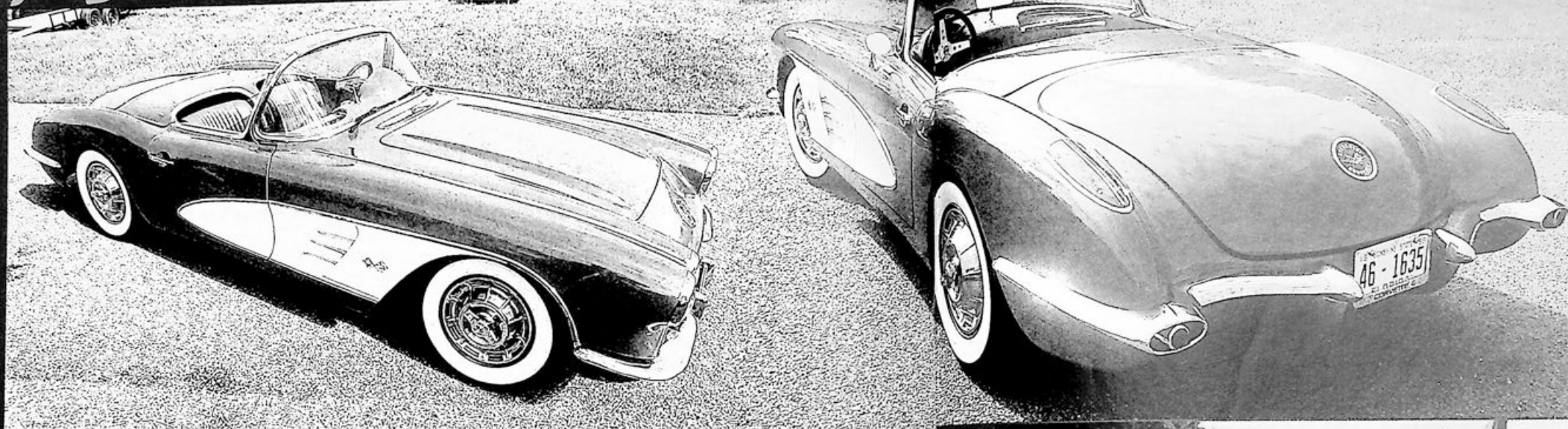
distribution with a 350-inch Chevy is a nose-heavy 60/40. Standard brakes are 11-inch Ford Granada discs up front (four-wheel discs are optional) and a significant improvement over the original drums.

By juggling trim, this kit could be made to resemble any of the '58-'60 models. Although many engines could be adapted to fit, David recommends a small-block Chevy crate motor with a GM Turbo 350 or 700-R4 automatic transmission. The prototype shown here has a 350/350 built by Jasper Motors. A 300-350hp engine provides plenty of power for the under-3,000-pound car.

Choosing wheels and tires is one of the most personal decisions made by component-car builders. Some will want to go ultra-authentic with 15-inch steel rims, original-style hub caps, and 70-series tires. Those with a more modern bent might opt for wide 17-inch rims with rubber-band-like tires. Either will work on the Vette-Rod, which can be ordered with Ford or Chevy bolt patterns.

In order to control the high costs normally associated with building

Rule Breaker



components for a complex kit, Louisiana-based Arthur contracted with Technosport, a truck and bus manufacturer in Mexico City that has built the Mastretta sports car for some time. Feeling that the prices for after-market restoration parts were too high, Vette-Rod is now producing its own seats, interiors, windshield frames, top frames, and fasteners as well. They also hope to add their own line of reproduction chrome parts. By producing 90 percent of the components in-house, they can control cost and reduce late shipments due to missing parts. The lower cost of labor in Mexico helps keep the purchase price down. Once the parts are made, they're shipped to Daytona Beach, Florida, where Vette-Rod maintains its assembly and sales operations. Prospective buyers are encouraged to

visit their facilities, and Vette-Rod will cover the cost of a flight to Orlando with the purchase of one of its kits.

The one-piece Vette-Rod body is very different from an original Corvette's 26 panels. The original was laid up with a chopper gun, while the Vette-Rod body is hand-laid. Kevlar is also incorporated into stress areas, and steel plates are used for reinforcement. They're delivered in primer and ready to paint. Two dashboards are available, one with a flat face and modernized features, and the other a reasonable reproduction of the original. Optional Dakota Digital gauges modernize the interior, along with a 13-inch-diameter Grant steering wheel that gives more leg room than the 17-inch original. Electric-window kits are standard equipment, and custom wiring harnesses are provided by Painless

Wiring. Vintage Air air conditioning is optional. Vinyl interiors in almost any color combination are available, as are original-style seats.

The basic body package retails for \$6,995 and includes the body, doors, hood, trunk, and convertible-top cover. The Silver Package includes all of this plus a chassis, floor and tunnel, brake master cylinder, rollbar (not shown), "Bikini" soft top, seats, carpets, windshield, lights, and hardware. It sells for \$12,995. For another \$7,000, the Gold Package includes everything needed to complete the kit except for engine, tranny, radio, paint, wheels, exhaust, logos, and air conditioning. All steering, brakes, and suspension are mounted in place, along with the interior. This package will put the owner on the street faster, with a manufacturer's estimated completion time of at least four weeks. Note that the Bikini soft top is not the same as the original soft top, which will set you back about \$1,450 extra. A hardtop is a \$950 option (standard in the Gold Package). Although Vette-Rod does not sell turnkey cars, its dealers can arrange to have them assembled in the \$30,000-\$35,000 range.

In order to ease registration problems, each body and chassis is assigned a VIN and is supplied with a Certificate of Origin. For an extra \$175, Vette-Rod will provide a title as well. They have a network of dealers across the country and even a club for Vette-Rod fans.

Other models are scheduled to follow now that the '59/'60 model is in



production. Vette-Rod recently added replicas of the '56 and '57 models, and will soon introduce a Sports Edition that resembles a customized '60 Corvette. It will have body-color bumpers and a windshield frame, side air outlets, a racing-style interior, a rollbar, and many performance options for the engine and suspension. They will be sold only in rolling-chassis form and are expected to be out by mid-2000. Another project is a higher-performance version for track events.

David relates that the biggest hazard of driving a Vette-Rod is that he misses appointments and is late everywhere he goes since people are always stopping him to ask questions

and admire the lines. Unlike an original, a Vette-Rod can be driven every day without giving up modern performance, practicality, and comfort.

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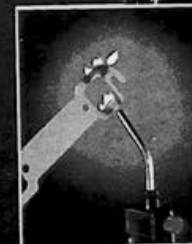
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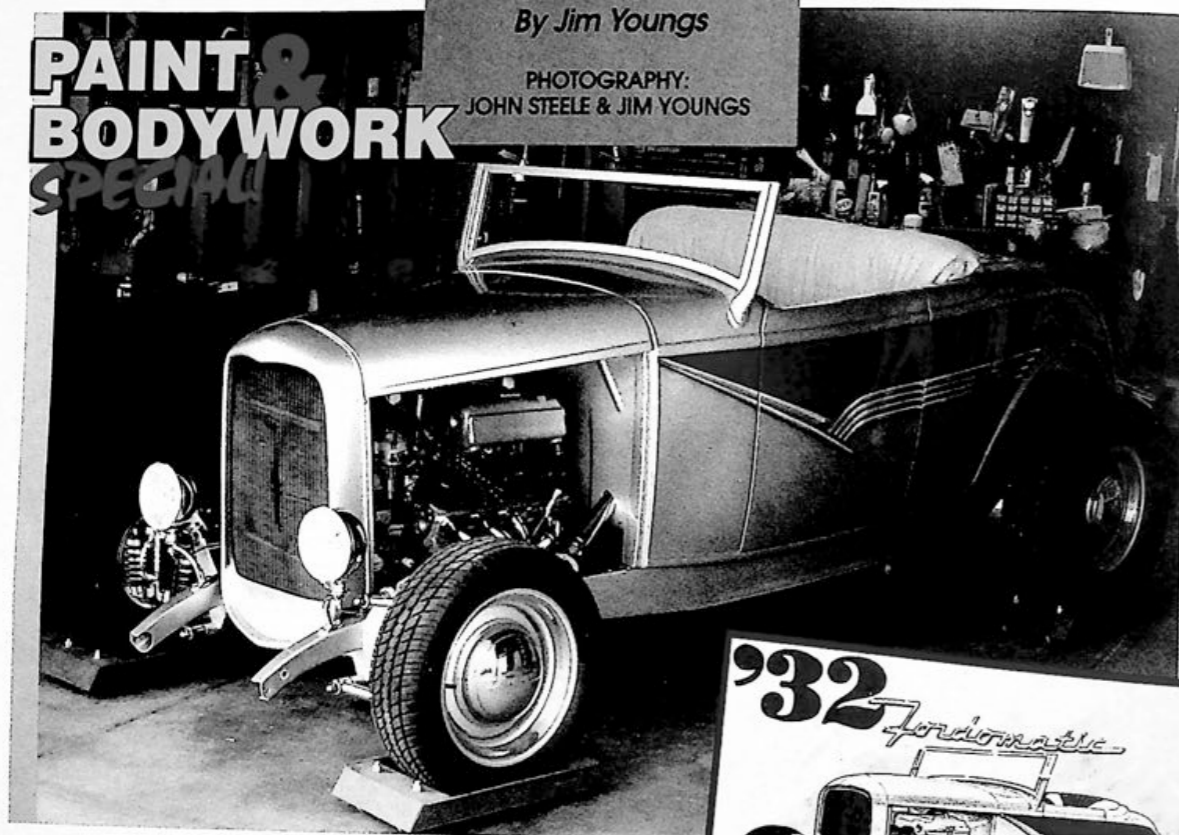
'32 Hiboy Update

Getting Paint on a Properly Worked Body Heightens the Excitement of a Build Project and Serves as an Impetus for Getting the Thing Finished

By Jim Youngs

PHOTOGRAPHY:
JOHN STEELE & JIM YOUNGS

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Few things in car building are as rewarding and exciting as getting lots of shiny color slathered on the components. After staring at drab gelcoat, imperfect bodies, or primer for so long during the buildup process, it's quite refreshing to finally feel as though significant progress has been made, and the prospect of a finished car finally looms large. We don't know about you, but when things get painted, we get a renewed sense of accomplishment and, along with that, a boyish excitement about actually sitting behind that steering wheel and turning the key for the first time. That excitement, however, is typically premature since there is usually plenty more to be done, but it seems to hold us through the rest of the pro-

ject. Getting things in paint also somewhat changes the project to a clean-hand exercise, which we always prefer. On the downside, extra care must be taken during the rest of the build not to damage those painted surfaces.

As we admitted to you in the last issue, we sort of approached our '32 Hiboy project bass-ackward and got the paint applied a little ahead of some of the component installations. But, hey, it's painted and looks real cool, and now we're accelerating to get it done.

Since a '32 Hiboy roadster is arguably one of the icons of street rodding, we felt as if we needed something to set ours apart from the masses.

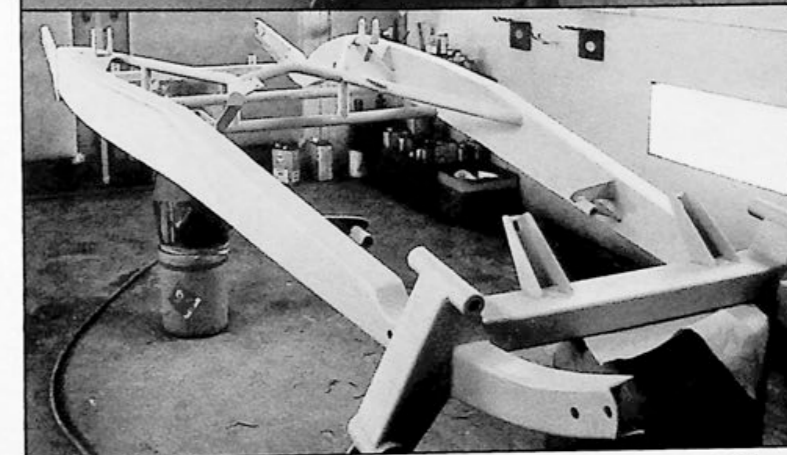
Henry Caroselli, the Rodsterfather, calls it a "wink factor," something about a car that will cause someone walking by a row of '32 Hiboy's to pause and take special notice. The car winks at passersby, flirting with them and beckoning them to take a closer look.

Coming up with a wink factor for the Youngster was one of those fortuitous collaborations that seemingly came out of the blue. Keith Kaucher

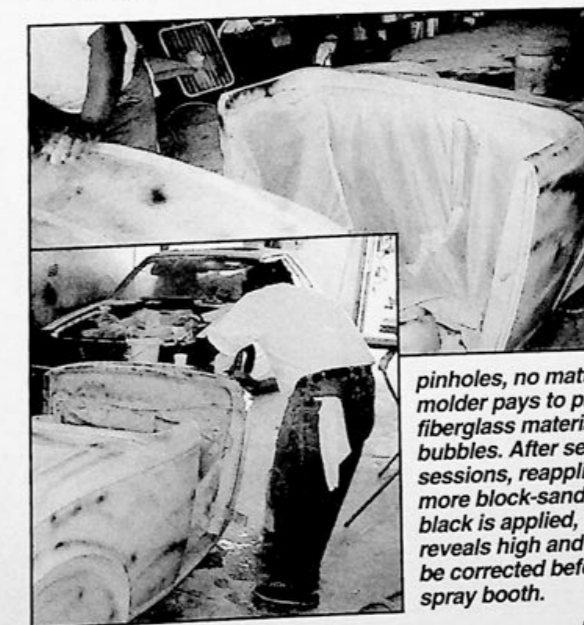
had speculatively submitted several custom-car ideas to *Kit Car* for us to consider publishing. When he called to follow up on those queries, we talked to him about doing a color rendering of the Hiboy and explained our need for an ethereal wink factor, whatever that may be. We also described the components we were using in the build, and challenged Keith to "come up with something cool." We were blown away when Keith showed up at the KC offices with his ideas on paper, based simply on our phone conversation, a '50s Fordomatic emblem and that rather nebulous wink-factor concept. Keith quickly tapped into the nostalgia of the Fordomatic script and the all-Ford nature of the car, and provided some styling cues to recognizable Fords of the past. Perhaps the most significant aspect of Keith's design is the use of modified '56 Fairlane side molding and second body color. He also called for a '50s-style two-tone interior treatment with the accent color matching the exterior panels. The accent color was also carried to the Stockton steelie wheels and grille insert. To be sure, the wink factor was strong, as even the rendering's flirting captured us immediately.

Well, translating that rendering to an actual car took some real thought and lots of searching for how such things can be accomplished. Keith felt that the side moldings could be made by modifying stock '56 pieces to fit the Hiboy's flanks. But the idea of hiring a stainless steel craftsman seemed prohibitive. We had seen numerous cars, however, on which airbrushed graphics effectively gave the appearance of polished stainless trim. Doing such would also provide flat surfaces since the body and trim are coated with clearcoat.

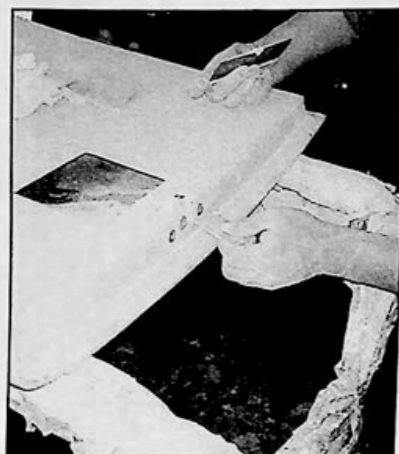
With a little arm-twisting of our painter—Auto FLM—who had been with the project from the outset, we convinced owner Craig Randle to paint the whole body Glasurit Porsche Silver Metallic, then mask the body, and paint the maroon metallic panels and clearcoat the whole car. We then took it to M&M Auto Artz (818/504-4900) for the airbrushing art. Once the graphics were applied, the car went back to Auto FLM for a final few coats of clear and some pinstripping by Dave McGinity. We're thankful to our buddy John Steele, JPS Motorsports, for all the logistic coordination and riding herd on getting this special paint job accomplished.



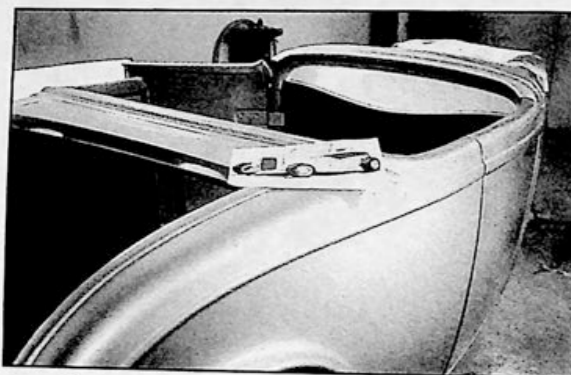
After the bodywork is accomplished, a good coat of primer is sprayed, then block-sanded and the Glasurit silver basecoat applied. Since some of the side rails of our chassis would be visible, we also painted the chassis with body color. The tip here is to do lots of planning and prefitting as many components as humanly possible so that all holes are drilled. That prevents the risky proposition of having to drill on painted surfaces.



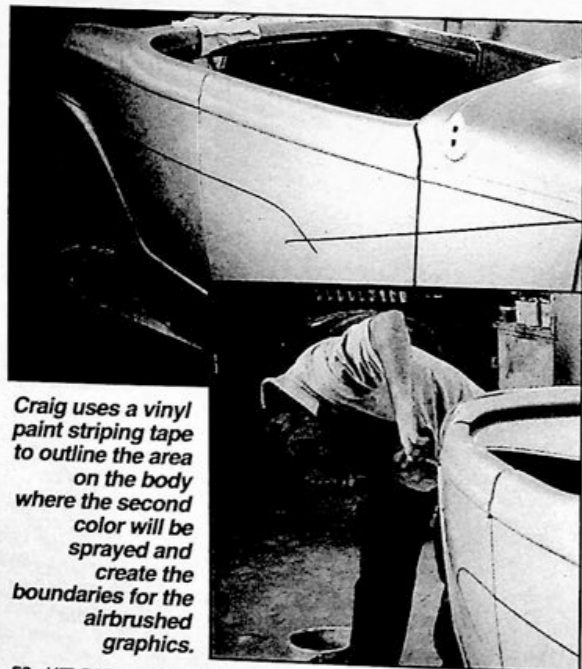
The key to a good paint job is bodywork. Though tedious and time-consuming, ensuring that the fiberglass body is straight, all pinholes filled, and seams aligned rewards the owner with a quality final finish. Most fiberglass bodies have numerous pinholes, no matter the attention the molder pays to properly rolling out the fiberglass materials to rid them of air bubbles. After several block-sanding sessions, reapplication of primer, and more block-sanding, a guide coat of black is applied, the sanding of which reveals high and low spots that need to be corrected before heading to the spray booth.



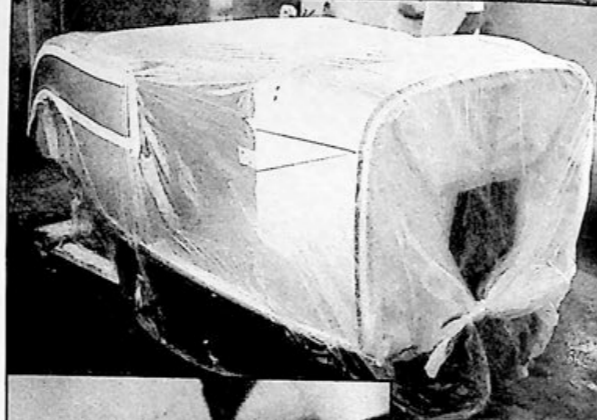
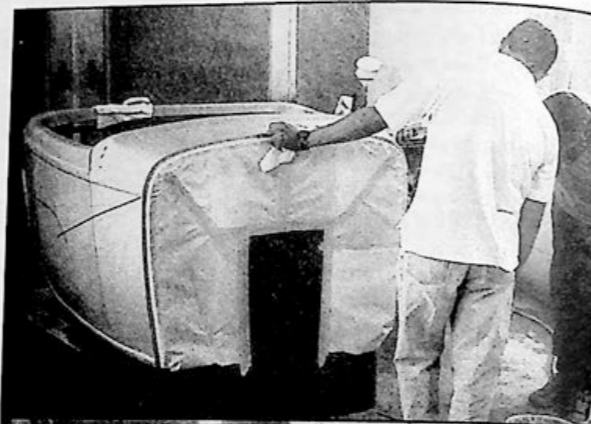
Doors, hoods, and trunk lids get the same kind of attention and lots of block-sanding. It's a good idea to fit these components at the primer stage to ensure consistent seams, then remove them to go through the bodywork processes as required.



Once the bodywork is complete, the car heads for the spray booth for the silver basecoat. The doors, trunk lid, hood, and grille shell are painted separately. Here, the doors were reinstalled so that taping for the graphics and second color would be properly aligned. With Keith Kaucher's rendering at hand, the masking process can begin.

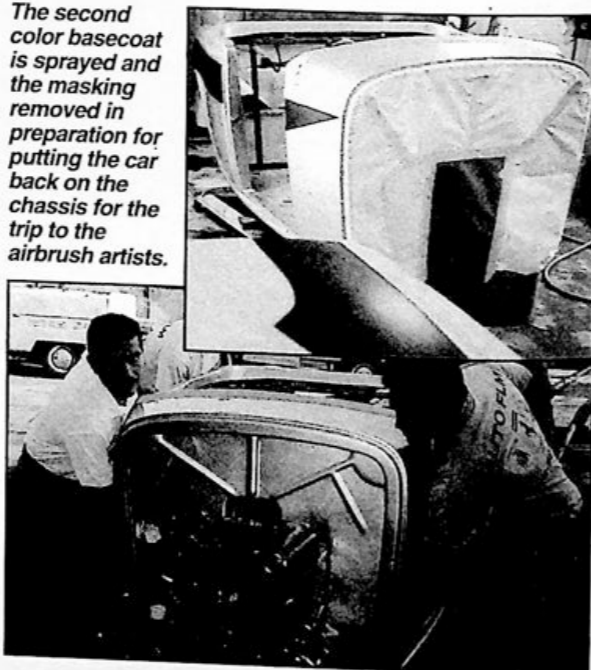


Craig uses a vinyl paint striping tape to outline the area on the body where the second color will be sprayed and create the boundaries for the airbrushed graphics.

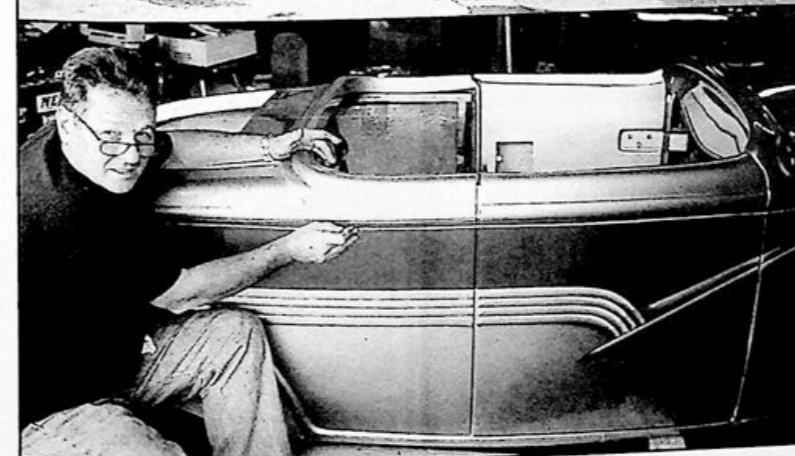
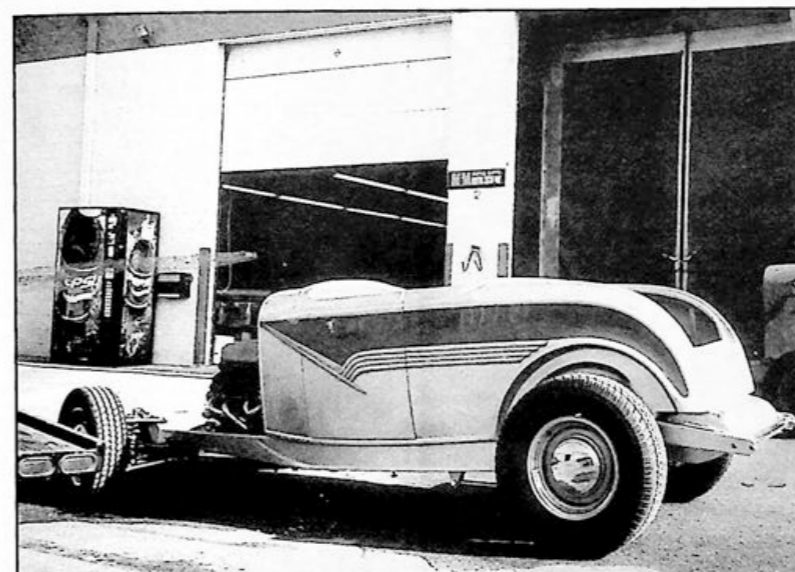


Once the pattern seems correct, masking those areas of the body that remain silver is the next step. The doors are also removed and masked.

The second color basecoat is sprayed and the masking removed in preparation for putting the car back on the chassis for the trip to the airbrush artists.



Doors are reinstalled for the final time. Next step: M&M Auto Artz.



The talented crew at M&M did a great job of translating our wink-factor idea to the actual car by airbrushing shiny stainless-steel-look trim to the side of the body. The final step was applying clearcoat over the graphics, then pinstriping to create distinctive lines of demarcation.

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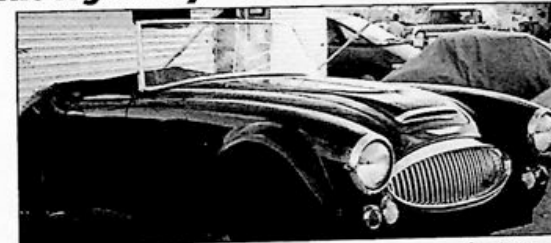
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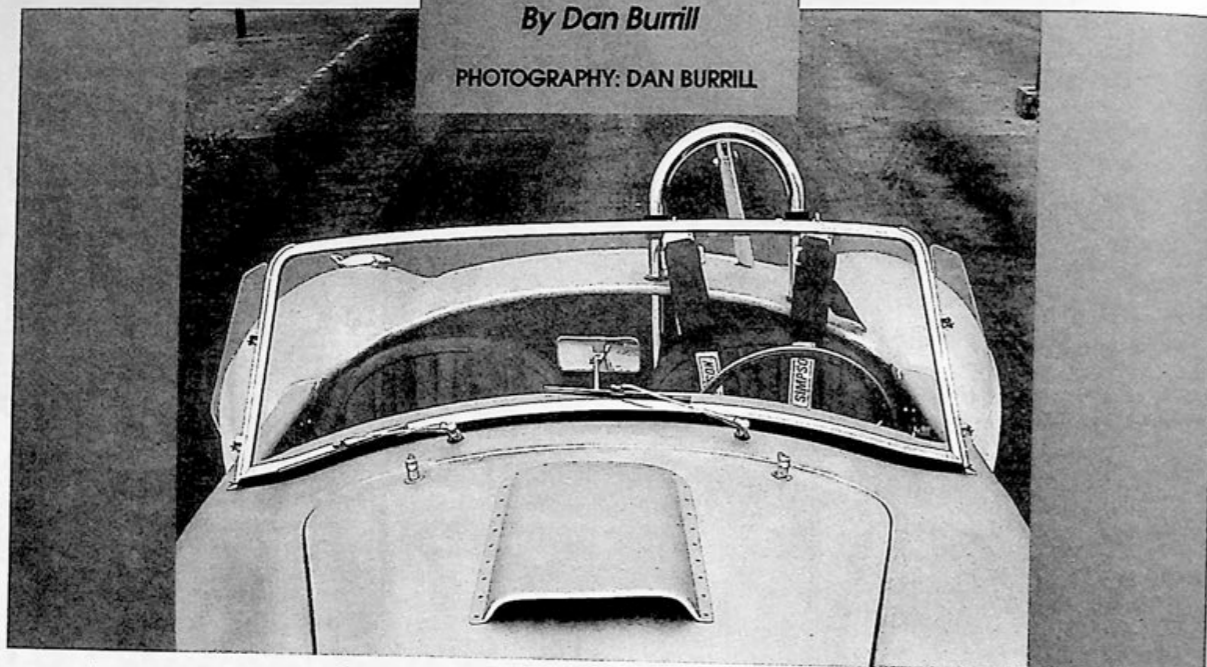
How-To

Low-Buck Windshield Wipers

Junkyard Components Make This a Budget Install

By Dan Burrill

PHOTOGRAPHY: DAN BURRILL



Now that kit cars and street rods have become so popular, many are being used as daily drivers or for long-distance travel, where in the past they were used mainly for shows, club events, parades, and Sunday drives. And wanting to meet state registration requirements, more and more hand-crafted cars are being fitted with functional windshield wipers.

There are several aftermarket companies that offer good kits for installing custom wipers, but they tend to be on the expensive side.

There are several low-buck alternatives to buying new. One is the Pinto/Mustang II wiper assembly that works well if there is enough room under the dash. The disadvantage to this is that the wiper shafts are exposed under the dash, so care must be taken to ensure that no wires touch the components. The second is from a Triumph Spitfire, and the third (the best, in my experience) is the MG wiper setup. I found a complete wiper assembly in good working order at a salvage yard for only \$50.

Available from 1962 through 1980,

MGs came with Lucas cable-drive DR3A single-speed wipers, and later the Lucas 14W two-speed wipers. Both of these wiper motors feature the speed and a "park" position so that when the switch is shut off the wipers return to their normal resting place. It is possible to rotate the wiper park position to the other side of the windshield by rotating the limit switch 180 degrees.

The installation shown here is of the earlier Lucas DR3A single-speed wipers out of a mid-'70s MGB. This find had three wipers, but we converted it to two wipers for our Snake application. The MG system features a separate motor (mounted in any number of locations), a pair of transmissions, and a worm-drive cable. Such a system is versatile for a wide variety of project cars since the transmissions can be placed virtually anywhere, and the worm-drive cable and tubes altered to fit the application.

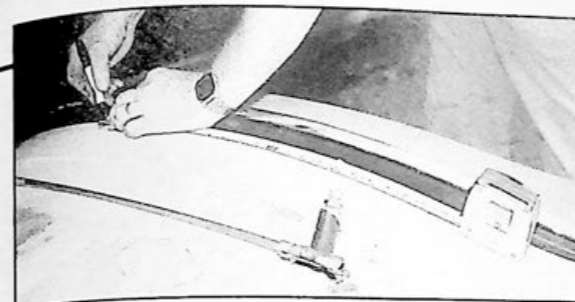
Anco adjustable arms (PN 4101) and Anco wiper blades (PN 25-11) work well with this installation. The Anco adjustable arms have variable length and blade angle. For a refer-

ence I used the *Haynes Automotive Repair Manual* for the MGB. This softbound book is available at most bookstores or at the public library. It features a complete drawing of the wiper motor and assembly, and how to troubleshoot the system if you have a problem.

The photos here show most of the application as it was being done. After the holes are cut in the body, the wheel boxes (or transmissions) are mounted to the kit car body much the same as on the MG donor. The wheel-box shafts are pushed through the cowl from the underside and are held in place by the spacer and a bezel and nut.

It's important to note that when fitting the new aluminum tubing between the motor and transmissions, care must be taken not to kink or sharply bend the tubing—this could cause friction or erratic operation of the wipers. Also, when installing the new tubing, lubricate the cable shaft prior to installing it into the tube.

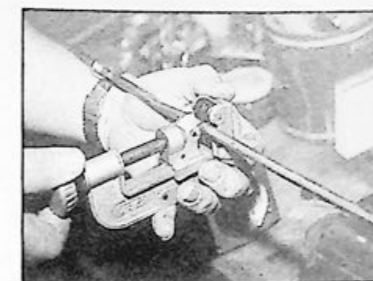
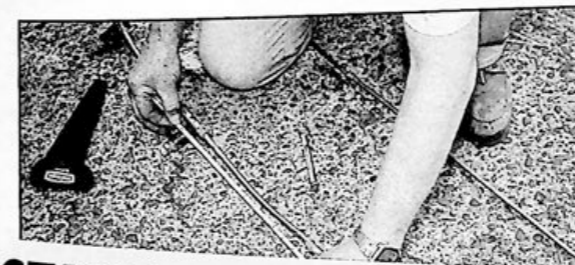
Thanks to Len Ewell for helping with this wiper install.



1 Based on the distance between the wheel boxes, measure down 1 1/2 inches from the bottom of the windshield frame as a guide for drilling the cowl for the wiper shaft. Now measure for the second wiper shaft hole. At this time, check for wiper sweep before drilling the holes.



2 Here's the complete wiper assembly out of an early MG. This unit was set up for three wipers, but it's easy to eliminate one for what we want.



5 To fit our application, we had to make new tubes by using aluminum tubing to which we flared the ends to fit the donor transmissions. We used a tube cutter to ensure smooth cuts, and

a flaring tool to make the 45-degree ends. The new tubing is actually fuel (or brake) line that can be purchased at any automotive store. Don't forget to lubricate the cable shaft before reassembling the system.



6 The holes in the cowl should be drilled at about a 45-degree angle to the windshield. The rubber shaft washer and spacer are designed for a steel body, so measure and trim appropriately off the bottom.



7 We mounted the wiper motor to a steel support under the dash by modifying the MG bracket. The final step is running

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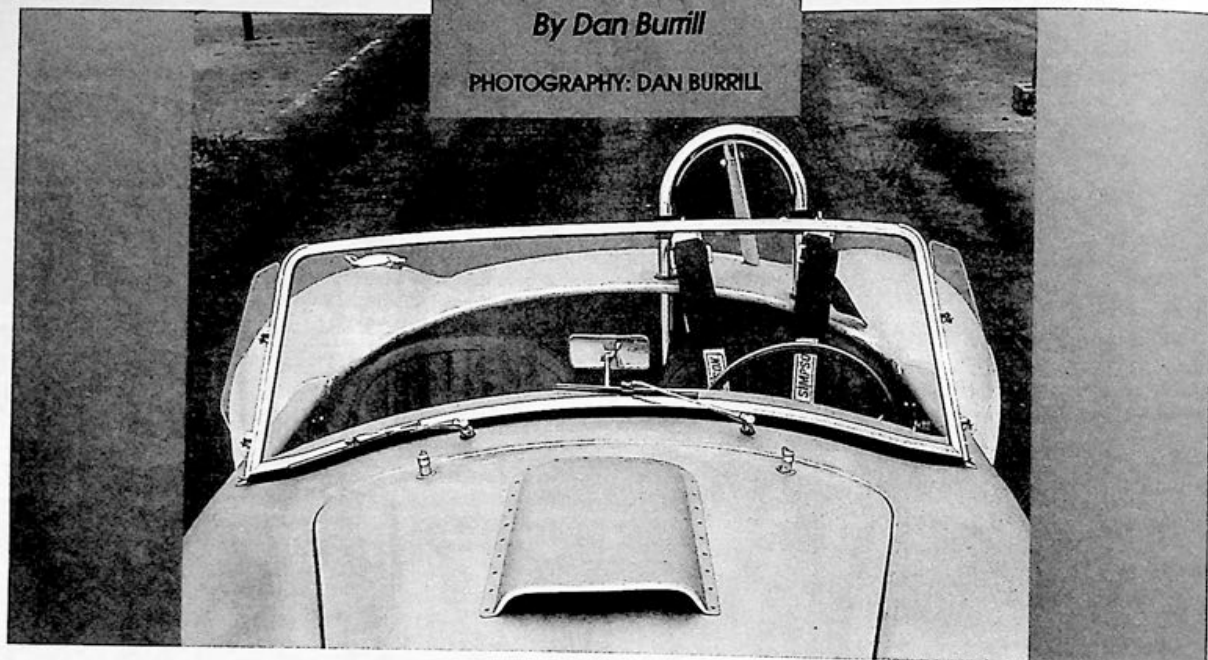
How-To

Low-Buck Windshield Wipers

Junkyard Components Make This a Budget Install

By Dan Burrill

PHOTOGRAPHY: DAN BURRILL



Now that kit cars and street rods have become so popular, many are being used as daily drivers or for long-distance travel, where in the past they were mainly for shows, club parades, and Sunday cruises. Wanting to meet state requirements, more and more kit cars are being built with functional windshield wipers.

There are several companies that offer pre-installed custom wiper systems, but they tend to be on the expensive side.

There are several alternatives to buying new. A Pinto/Mustang II wiper works well if there is room under the dash. The downside is that the wiper is exposed under the dashboard, which can be taken care of by covering it. I took the components from a Triumph Spitfire and installed them in the third (the best, in my opinion) MG wiper setup. I have a complete wiper assembly available at a salvage yard.

Available from 196

MGs came with Lucas cable-drive DR3A single-speed wipers, and later the Lucas 14W two-speed wipers. Both of these wiper motors feature

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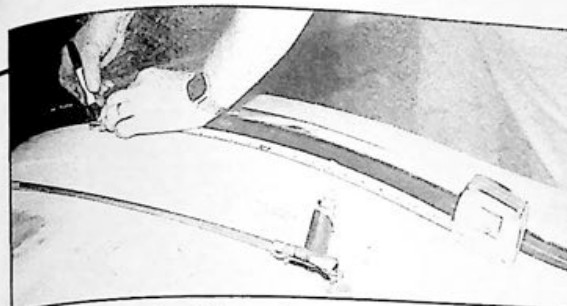
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1 Based on the distance between the wheel boxes, measure down 1½ inches from the bottom of the windshield frame as a guide for drilling the cowl for the wiper shaft. Now measure for the second wiper shaft hole. At this time, check for wiper sweep before drilling the holes.



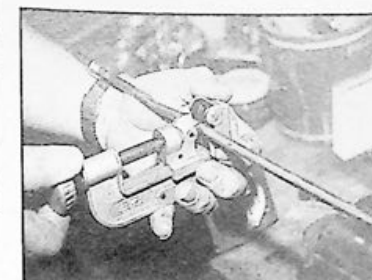
2 Here's the complete wiper assembly out of an early MG. This unit was set up for three wipers, but it's easy to eliminate one for what we want.



3 Measure the length of the MG wiper drive tube, then measure across the car's cowl to figure the distance between the wiper motor and the wiper mounts. We mounted the wiper motor on the firewall under the dashboard, on the passenger side of the car.

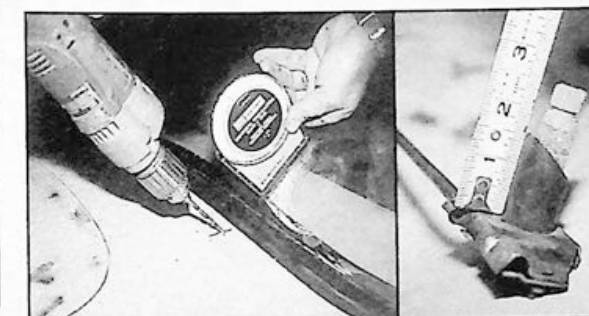


4 Unbolt the wheel-box cover to reveal the mechanics of the cable and gears. Note the flared ends of the tubes.

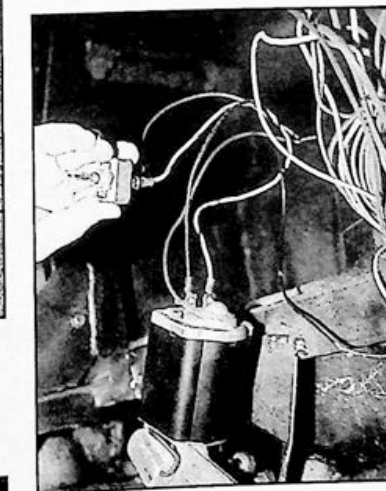


5 To fit our application, we had to make new tubes by using aluminum tubing to which we flared the ends to fit the donor transmissions. We used a tube cutter to ensure smooth cuts, and

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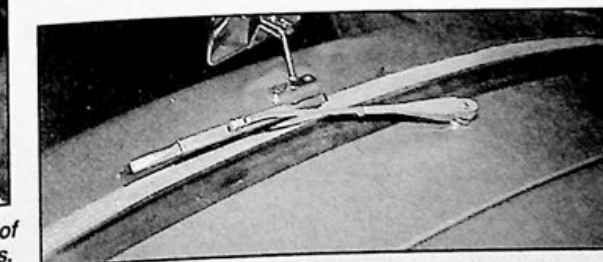
6 The holes in the cowl should be drilled at about a 45-degree angle to the windshield. The rubber shaft washer and spacer are designed for a steel body, so measure and trim appropriately off the bottom.



7 We mounted the wiper motor to a steel support under the dash by modifying the MG bracket. The final step is running the wires to the dash switch.

8 Adjust the wipers so they fit flat in the park position.

KC



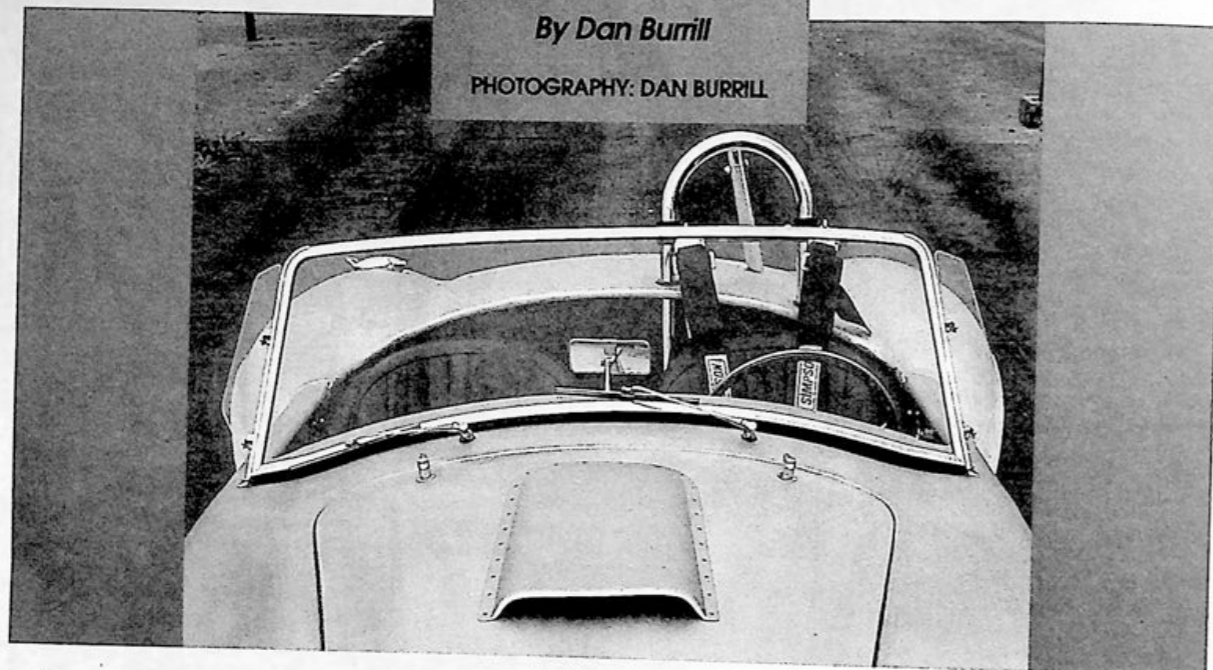
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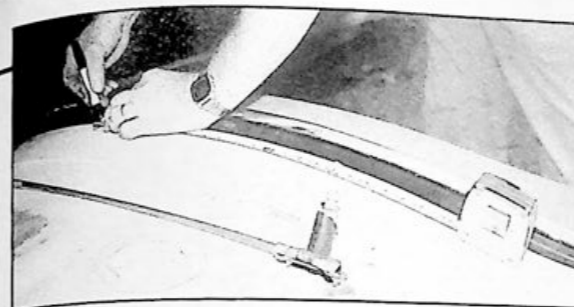
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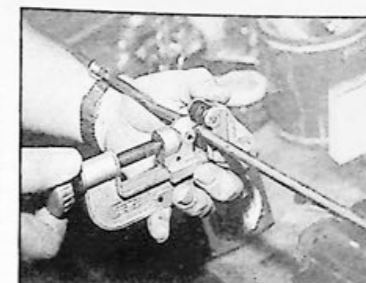
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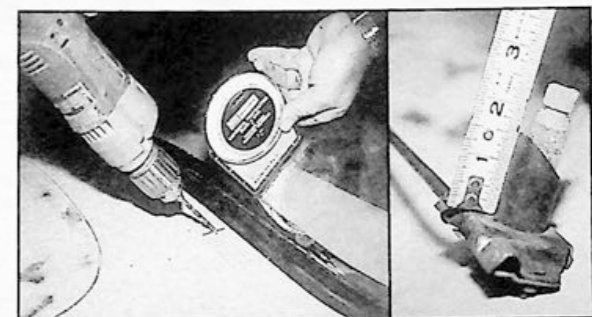


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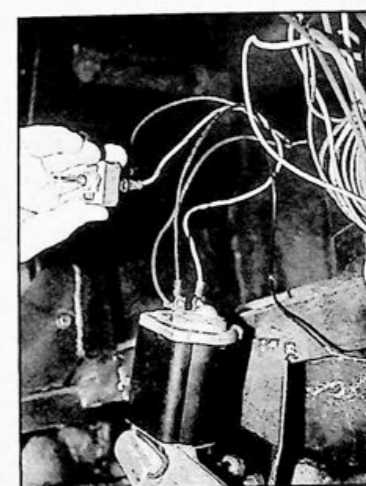


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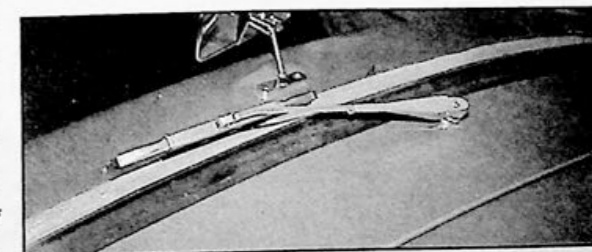
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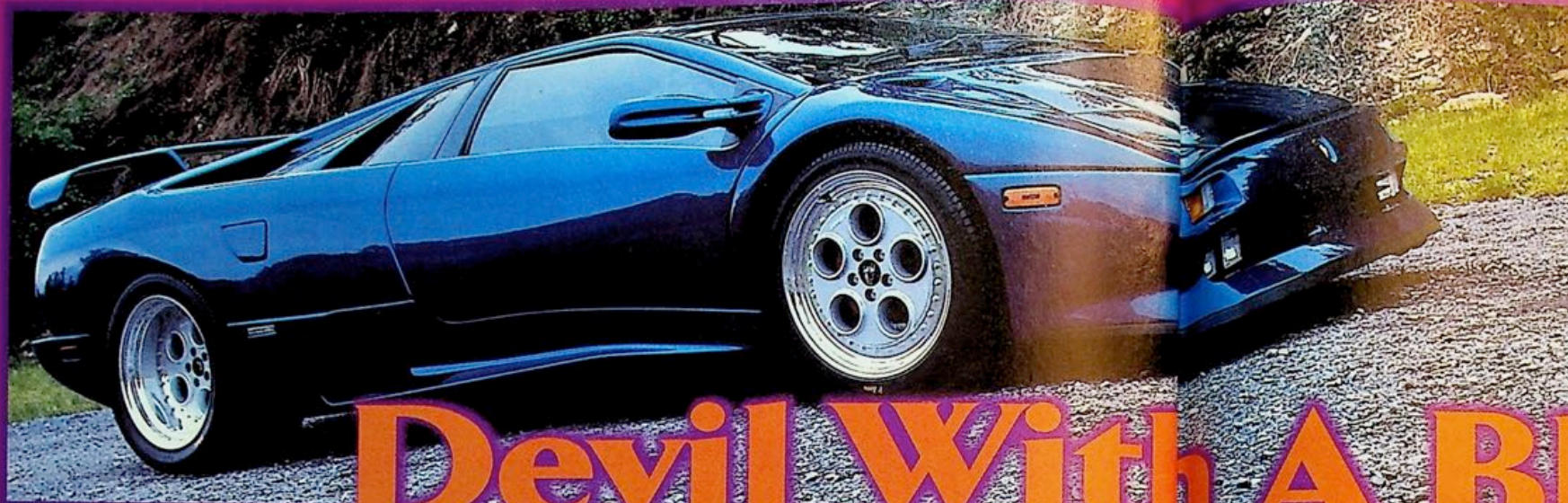


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KC



Devil With A Blue Dress

By Harold Pace
PHOTOGRAPHY: HAROLD PACE

Richard Kopf had owned two Lotus Esprits when he decided he had been through enough in terms of expensive maintenance, high vehicle taxes, and stratospheric insurance rates. He still wanted a distinctive specialty car, but with a more practical bent than European exotica provided. He looked at a lot of American specialty cars, but was beginning to get discouraged. None that he had looked at met his high standards for manufacturing quality until he stopped off at Kirban Customs and saw this turnkey Diablo SE/30 replica.

The original '93 Lamborghini SE/30 was a special edition of the famed

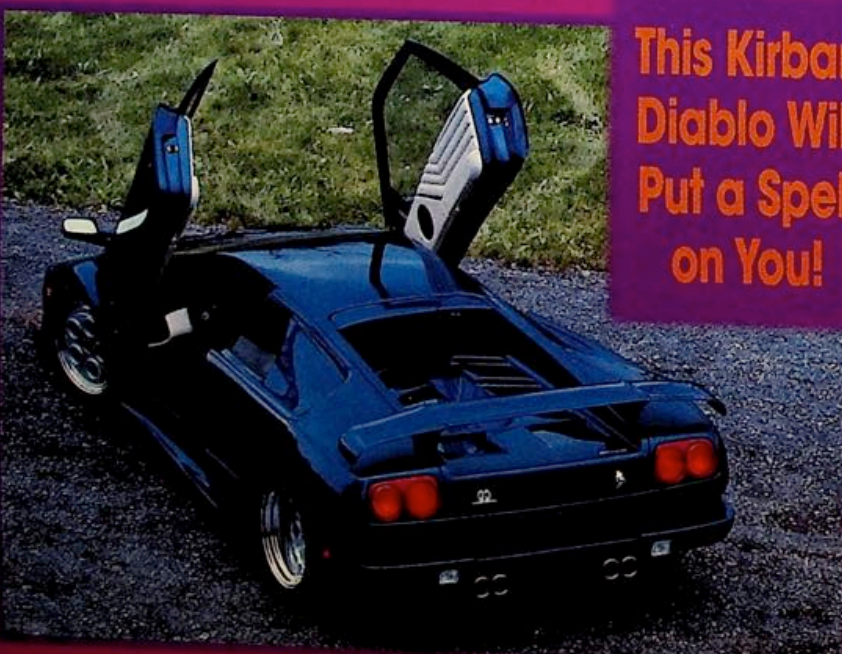
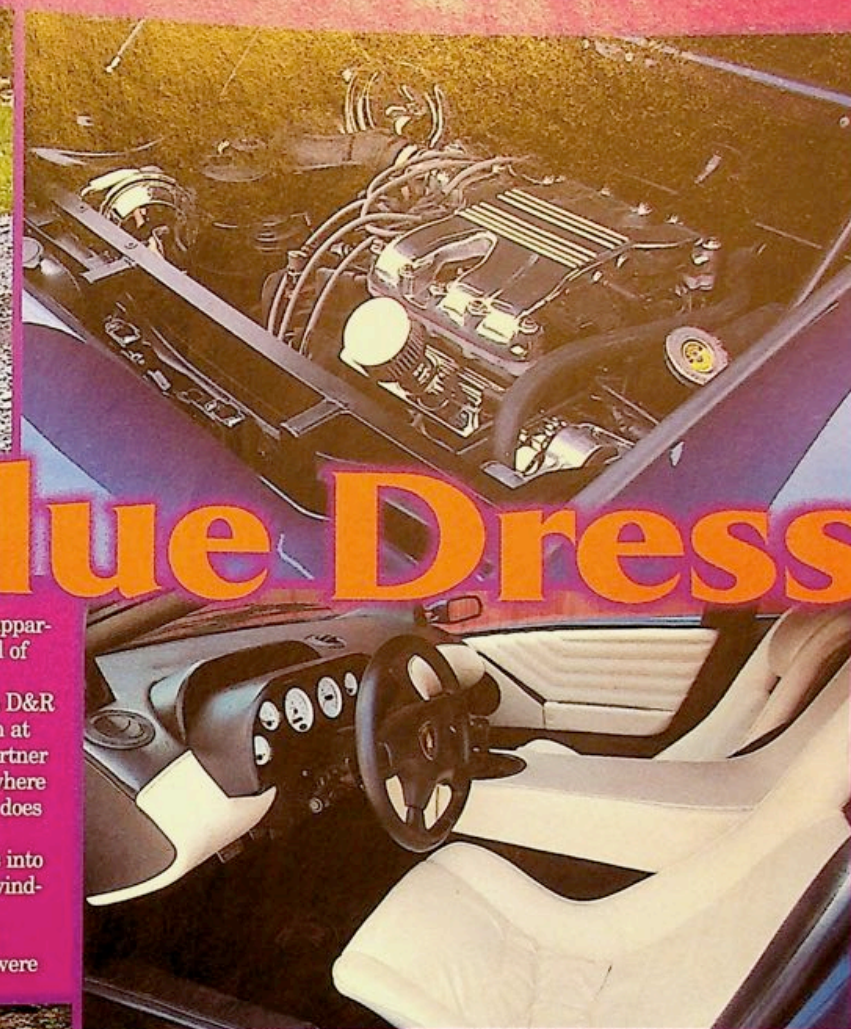
Diablo that had replaced the aging Countach in 1991. To celebrate Lamborghini's 30th Anniversary, this Diablo had been beefed up with 525 hp at 7,000 rpm, 33 more ponies than the standard model. The front spoiler was made deeper, and new side skirts were added to improve aerodynamics. The rear wing was fitted with an adjustable rear flap for high-speed stability, and the revised carbon-fiber rear deck was louvered for improved cooling. In order to reduce weight by 275 pounds, many "luxury" features were removed, including the radio, power windows, ashtray, cigar lighter (now *there's* a heavy item), and air conditioning. Magnesium and carbon fiber were used wherever practical. The leather interior was replaced by a lighter, synthetic suede on carbon-fiber bucket

seats. Special magnesium 30th Anniversary model wheels were designed, and a unique, light metallic purple paint job was available only on the SE/30. Lambo claimed a top speed of 207 mph and a 0-60 time of 3.8 seconds. Only 150 SE/30s were made. There was an even more limited edition of this car called the SE/30 Jota that featured revised fuel injection and engine management to produce a startling 600 hp.

The D&R kit that Kopf fell in love with was a replica of the SE/30. "When

I first saw this blue Lamborghini it was apparent that this was a quantum leap from all of the previous cars that I had seen," Kopf relates. It started with a \$14,000 kit from D&R Replicars and was built by Darrell Kirban at Kirban Customs. Kirban was a former partner at D&R, but now has his own operation where he crafts D&R kits into turnkey cars and does custom interior work.

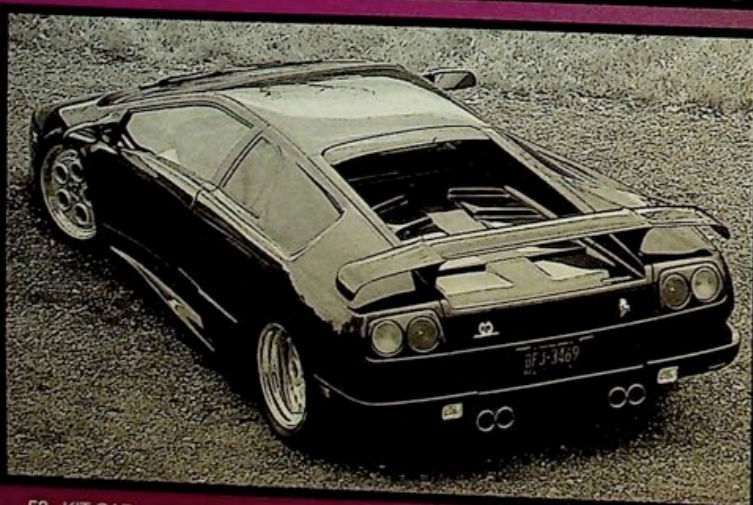
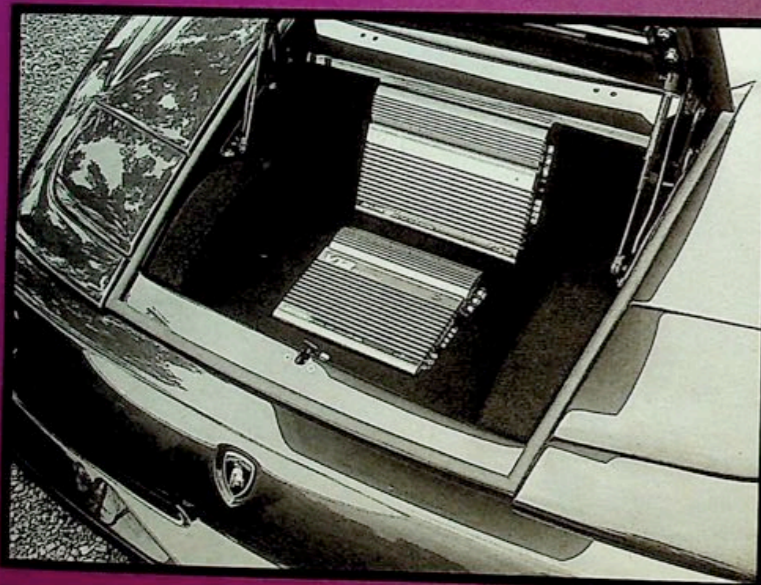
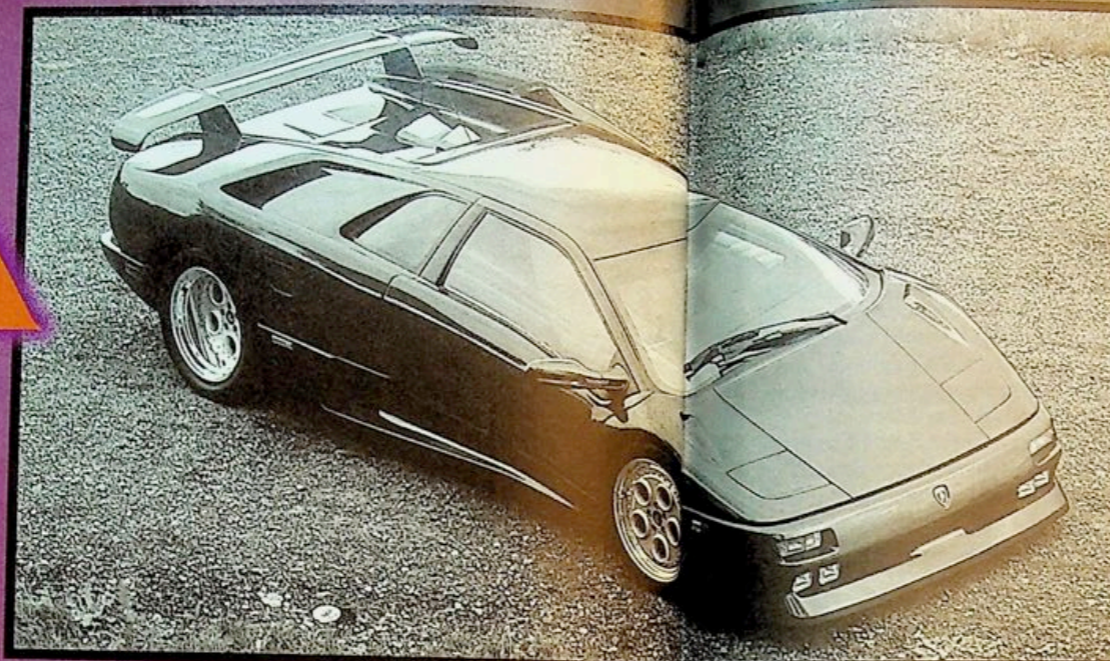
Kirban also recessed the parking lights into the bumpers and added functional delay windshield wipers. The windshield area was redesigned for a more authentic look, and power windows that go all the way down were



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installed (some kit windows only retract part way). The one-piece D&R body was separated into several pieces to resemble the original Lambo, which allows the body to flex without stressing the fiberglass. This cuts down on cracks and noise. To protect that low nose from damage, urethane wheels are mounted underneath and attached directly to the frame. This allows the nose to ride over speed bumps without cracking.

The standard Fiero V-6 running gear was treated to polished fuel injection and chrome valve covers, along with a Flowmaster exhaust system with 3-inch stainless steel tips. Dual Griffin aluminum radiators with twin 12-inch electric fans keep things cool on hot days. The rear suspension is now fully adjustable, with custom chrome-moly lower control arms. Ryane Motorsports' 13-inch cross-drilled and slotted brakes provide plenty of stopping power, and 17-inch Compomotive wheels are fitted with Pirelli P-Zero 245/40 front and 335/35 rear tires. All hardware was replaced with stainless steel pieces.

This stunning custom started life as an '86 Fiero GT, purchased for \$3,000. The frame was stretched 11 inches and widened 4 inches in the front. A rollcage was added for safety and stability, and the frame was reinforced throughout with 1-inch-square and 1x3-inch rectangular tubing. A-1 Racing adjustable shocks provide improved handling.

The interior is a showcase for Kirban's upholstery work. Saddlewood vinyl is used on custom seats, and the dash holds VDO white-faced Cockpit Series instruments, including a clock and a 240-mph speedometer. A Kirban Customs reproduction steering wheel is used, along with all custom carpet, door panels, and trim. Kirban says no Fiero parts were left when they were finished! An Alpine CD system can shake the windows with 6-inch digital speakers and a V-12 Alpine amp. Unlike the original, this street

cruiser has factory air conditioning for hot-weather use.

Although this attention to detail is impressive, it's the stunning paint job that first ropes you in. PPG two-stage "Blue Mica" clear urethane paint was used, with five coats of base and four coats of clear. The color is a duplicate of an original Lambo color and really sets the car off. The finish is so good it's dangerous. Last year at the Carlisle Kit Car show, it caused an accident while parked on the side of the road—gawkers were paying more attention to it than to the traffic!

Kirban Customs does only about four or five turnkeys a year, with a starting price of around \$50,000. This particular car has been appraised at \$82,000, but Kirban will also do partial turnkeys and interiors for those on a more limited budget. Kopf is thrilled with his new machine and has put on over 2,000 happy miles since picking it up last year. He even took it by a Lamborghini dealer where the salesman didn't know it was a replica until he opened the engine compartment. That must have been quite a shock!

KC

SOURCES

D&R Replicas
Dept. KC
635 Mill St.
Allentown, PA 18103
610/434-2225
www.kitcar.com/d&r/

Kirban Customs Inc.
Dept. KC
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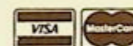
At left: This image of a Unique 427SC roadster in action speaks for itself. Photo courtesy of Car and Driver magazine.

At right: Since 1996 you've seen this Viking Blue Unique 289FIA featured prominently in B.F. Goodrich's magazine ads and promotional posters! It was built (and is driven competitively) by Unique dealer Bob Shaw of Santa Ana, California.



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tems were always running. To turn the system off, you had to remove the compressor belt from the engine, which was not very convenient.

Air conditioning was an expensive option on cars in the '50s and '60s. In those days of hot rods and fast street machines, air conditioning wasn't popular because it would take horsepower away from the engine. If you wanted cooler air, you would open the windows and just go faster.

It wasn't until the first oil shortage in 1974, which slowed cars down, that air conditioning became popular. In the '80s, air conditioning became a standard option on almost every car. Now, it's considered a necessity.

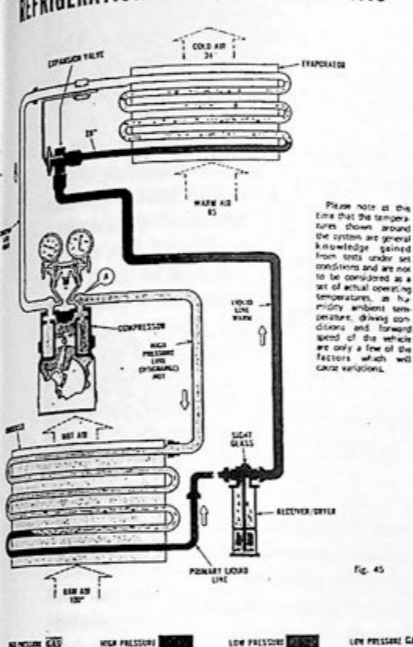
Many of today's enclosed kit cars would benefit from air conditioning. The aftermarket add-on air conditioners are perfect for the Lambo lookalikes, '30s and '40s coupes, and many other styles. We even know of some Cobra guys who have A/C in their roadsters.

HOW IT WORKS

Before installing an air conditioner in your car, it may be helpful to understand how each component of an air conditioner works. The basic principle behind the cooling process is evaporation. Heat is absorbed when a liquid coolant turns into a gas when it evaporates. As this process repeats itself, the heat is taken out of the air and replaced with colder air. Modern air conditioners circulate a coolant inside a sealed pressurized system. Because the system is sealed, eventually all of the circulating coolant turns into a gas and loses its evaporative properties, unless it's converted back to a liquid. The gas reverts back to a liquid when it's condensed and cooled. The liquid coolant is then ready to make another cycle through the system.

It takes a number of components to make an air-conditioning system work. The high-pressure liquid coolant coming from the condenser passes through a small expansion

REFRIGERATION CYCLE SCHEMATIC



A schematic of the coolant flow helps in the understanding of how an air conditioner works. The coolant changes from a liquid to a gas and back to a liquid as it flows out of the condenser through the evaporator and back through the compressor to the condenser again.

valve inside the evaporator. This creates a low temperature mist that fills the tubes of the evaporator that's located in the passenger compartment. The evaporator takes the warm air inside the car and passes it over the cold tubes. This absorbs the heat. A fan blows over the evaporator's fins and tubes to circulate the cold air inside the passenger compartment.



brass fittings are also included. One hose comes out of the water pump and the other goes into the manifold. Always use Teflon tape on all threaded fittings.

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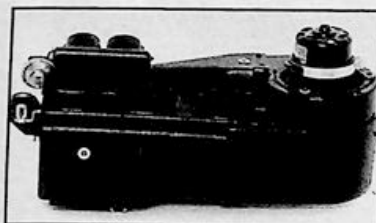
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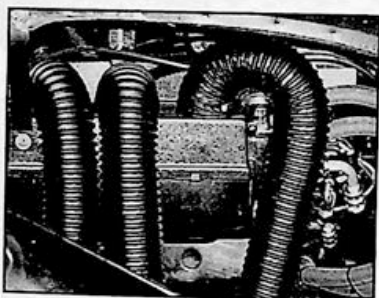
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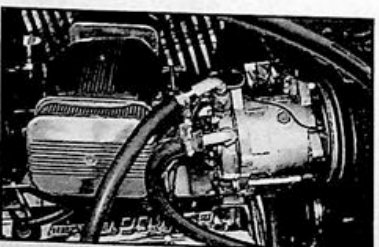
Aftermarket air conditioners, like this one from Vintage Air, are compact and fit under the dash. This unit also includes a heater and vents for a defroster.



To facilitate the installation of the evaporator, removing the glove compartment may be necessary. Mounting brackets attach to the firewall and dash supports. The evaporator attaches to the brackets.



It is critical not to crimp any of the hoses going to or out of the evaporator. The most difficult part of the installation is the fitting of all hoses under the dash.



The compressor is powered off the fan belt. It's obvious this installation was an afterthought. This engine compartment was immaculate except for the compressor. Hose clamps are not the best way to ensure a leak-proof system. The rubber hoses must be secured so they don't flop around and break the fittings off the compressor.

PHOTO COURTESY OF VINTAGE AIR

The hot coolant vapors are then drawn into the compressor. The compressor is the circulating engine that moves the liquid and gases through the system. After leaving the compressor, the gas travels to the condenser. This is a heat exchanger that converts the gas back into a liquid state. The condenser is a tube-and-fin radiator that's usually located in front of the engine's radiator. The final step in the process is when the liquid goes to the receiver/dryer. This can-shaped unit serves as the coolant and oil reservoir. It also contains a desiccant that removes any moisture from the air-conditioning system. The dry liquid coolant returns to the passenger compartment to begin the cooling process all over again.

INSTALLATION

Installing an air conditioner is relatively simple. Companies like Vintage Air make complete kits designed for do-it-yourself enthusiasts. The most critical aspect of the installation is mounting the evaporator under the dash. This is both a space and aesthetics issue. Depending on the make of car you're building, removal of the dash may make the installation of the evaporator and blower housing easier. The unit mounts to the firewall and the dash supports. The only precaution is to prefit the unit so that the vent and coolant hoses fit under the dash.

Routing the coolant hoses through the firewall is the only tricky part because you don't want to cut the hose and cause it to leak. Some builders will use a rubber grommet to protect the hose as it passes through the firewall. Others will use bulkhead fittings. With this method, you have two additional fittings that can potentially leak. All of the hose connections must be tight. For this reason, it's advisable to tighten the hoses to the evaporator before permanently mounting it into the car. Once the unit is installed, it will be next to impossible to get a wrench on the fittings to tighten sufficiently.

All of the other components of the system are installed under the hood. The condenser usually mounts in front of the radiator because it needs the cold ram air to flow over its fins.

This cools the coolant, returning it to a liquid state. The compressor is driven by the fan belt, so it must mount on the front of the engine. It's usually positioned opposite the alternator. The reservoir/dryer can mount anywhere there is room. It must be placed in the vertical position and should be in a cool place as far from the headers as possible. Keep this unit sealed right up until you hook up the hoses. The job of the desiccant inside the car is to accumulate moisture. If it's left unsealed for a short period of time, you'll need to replace it before the system is even functioning. When routing the hoses, make sure they are not crimped and that they are secured to the walls of the engine compartment.

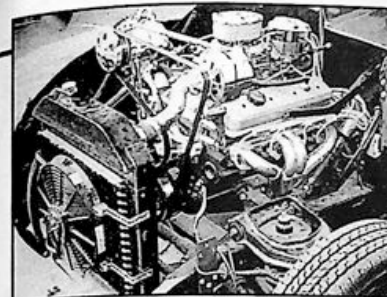
An item that's not part of some kits is an electrical fan. Installing a fan in front of the condenser will help in the cooling process, make the entire system work more efficiently, and produce cooler air inside the car.

After installing all of the components and completing the electrical and plumbing, take the car to an air conditioning shop. They should fill the system with the new R-134a coolant and check the system for leaks.

MAINTENANCE

There's very little maintenance needed to keep the system operating at its best. The most important is to periodically check for leaks. If the air coming out of the evaporator does not seem to be as cold, it may be that there is a leak and there isn't enough coolant in the system. Older air conditioners used Freon R-12 coolant, which contains chlorofluorocarbon (CFC-12), identified as a major contributor to the depletion of the ozone layer. Some shops will try to sell R-12 instead of the newer R-134a coolant. Freon is extremely expensive because it hasn't been made in the U.S. since 1995. The current rate is about \$400 a pound. When filling your system, use the newer coolant; it's cheaper now and will be in the future.

Contamination of the coolant is another maintenance concern. Moisture can leach through the rubber hoses and saturate the desiccant in the dryer over time. Under the best conditions, the desiccant will last only



The condenser mounts in front of the radiator. An electrical fan is the best way to ensure good airflow over the fins of the condenser. The compressor is usually mounted opposite the alternator. The same drivebelt powers both.



If there is no room to mount the evaporator under the dash, there may be room in the trunk. This installation used some very long, metal-braided hoses to move the coolant. The vents were hidden at the base of the front seat.

two to four years depending on the climate in your area. Moisture in the system is dangerous because it can react with the coolant to form hydrochloric acid. This eats away at the metal in the system. Small metal particles can accumulate and block the flow of the coolant. Besides the system not cooling, the blockage also keeps the oil that's mixed in the coolant from flowing. Typically, there are only 7 to 13 ounces of oil in an air-conditioning system. The compressor will ultimately fail from lack of oil.

Periodically check the coolant flow by looking at the refrigerant through the sight glass in top of the dryer/reservoir. With the engine at a fast idle, the air conditioner set at high, and the fan running, the most you should see is an occasional bubble if the system is working properly. If there are many bubbles, you're low on coolant. If the fluid is cloudy or there are streaks of oil, the system needs to be checked immediately.

When doing periodic maintenance, it's a good idea to clean any dirt, leaves, and bugs out of the condenser and radiator. Both systems will flow more air and run better. If there are any bent fins, straighten them with needle-nose pliers. The easiest maintenance is to run the air conditioner for at least five minutes every week, year-round. The rubber seals will stay lubricated and won't dry out and crack. **KC**

Sources

California Auto
Refrigeration
Dept. KC
1141 N. Kraemer Blvd.
Anaheim, CA 92806
714/632-0470

Vintage Air
Dept. KC
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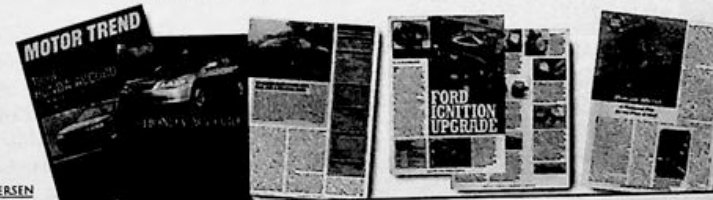
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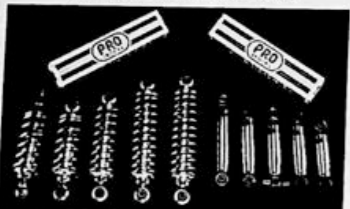


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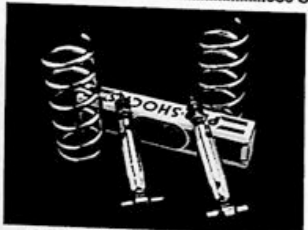


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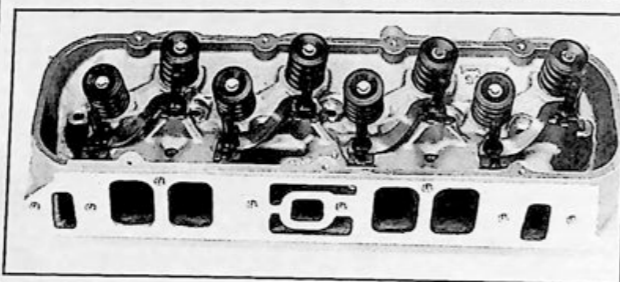


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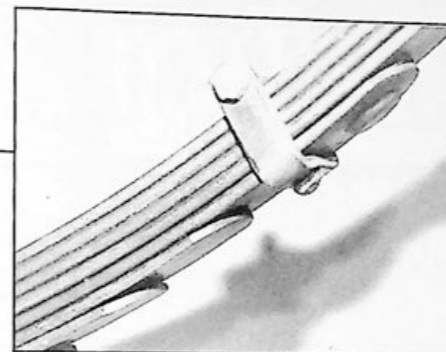
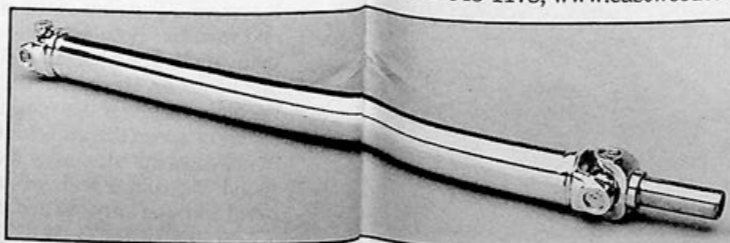
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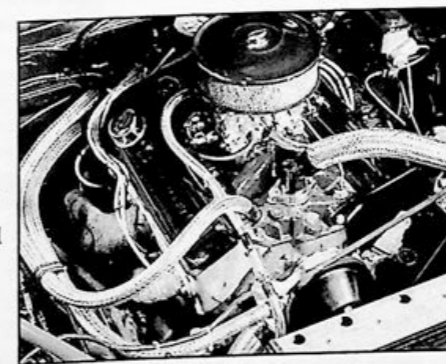
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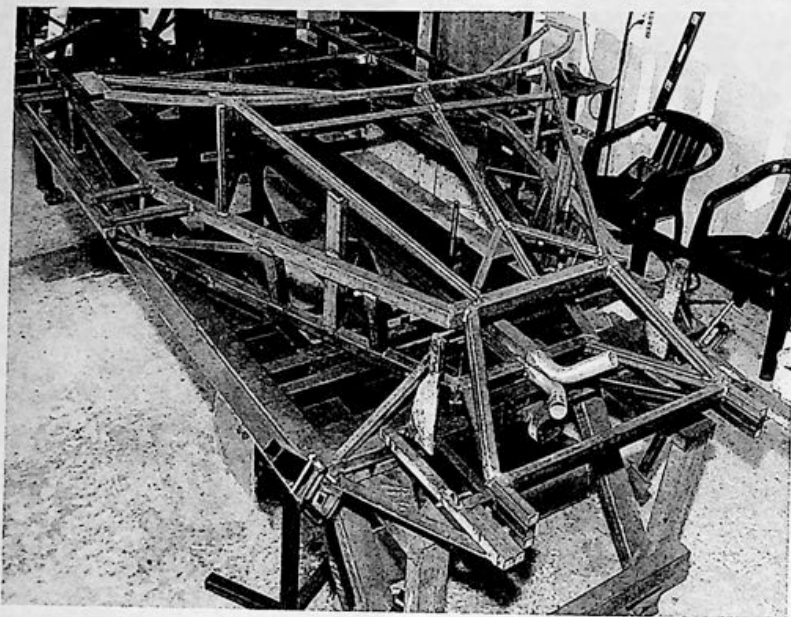
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IT'S A PLAN

I am interested in a Cobra replica. I'm sure you get that a lot, but my question is, do you know of anyone or anywhere I could get detailed drawings of a frame with dimensions? I have more time than money, so I'd like to try to build a frame myself. I'm aware of what's involved in constructing a frame and I'm sure I could build a straight and level chassis. What I would really like is a kit manufacturer who would be willing to supply me with the drawings, and I would purchase the body when the rolling chassis was complete.

Greg C. Buchalski
Kenilworth, NJ

Well, Greg, we hope you know what you're getting yourself into. Fabricating a frame from scratch is a very involved job even for a master fabricator. Getting the main rails straight is a big challenge, and then you'll need to fabricate body supports and brackets to hold the engine, tranny, radiator, steering, interior pod, suspension, master cylinders, firewall, pedal box, and dozens of other parts. And we also assume you're an experienced welder with a good gas or MIG setup. No stick-welding on a chassis—the heat buildup will cause it to warp. You'll need to build a jig to hold the chassis members so they will be square when they cool after welding. Can you do the math to figure the torsional rigidity?

We don't know of any kit manufacturers that will sell you plans for two reasons. One, they have chassis of their own to sell. Second, they would be undertaking a lot of liability in these highly litigious times... and they don't know how good a job you'll do. However, if you're still convinced you can do the job, Cobra Restorers (770/427-0020) sells a set of plans for the original 427 Cobra chassis for \$199.95. These include the frame and body substructure and are completely dimensioned. The suspension pickup points are shown, as well as the differential mounting brackets and information on mounting the body. The plans do not include A-arms, spindles, or uprights (which they will sell you). This would allow you to build an exact replica of the 427 Cobra, lacking only a body. You would have to use a kit body that was built on the original 90-inch wheelbase and then modify it to fit your chassis. You'll probably also have to redesign the body supports to pick up the fiberglass body. It's highly unlikely you'll save any money going this route, but you sure could learn a lot!

If you have not built a chassis before, be sure to have it looked over by a professional welder or race car fabricator before you proceed with the assembly. This is a critical safety-related component and a failed weld or improper design could be catastrophic.

FIERO V-8 TARGA

I'm building a Fiero-based kit car and have run into some problems. The body is mostly stock with the exception of a rear spoiler, flared fenders with functional brake ducts, and wider wheels and tires. I'm having two problems. The first is that I would like to install a Targa top kit and a rear limo window so I could have a true open car. Are there any suppliers that offer these options? The second thing is my choice of power. I went with a non-fuel-injected Chevy V-8. Is there anyone who makes a wiring harness that will work with my stock speed takeoff and tach output or someone that makes analog gauges that will work with my stock transaxle and related components? Any information will be a great help in completing my dream.

Bradley Flener
Eddyville, KY

Your Targa top is going to be quite a project. Removing the top of a Fiero weakens the chassis appreciably. There have been many convertibles made over the years, but at this time no one is making a kit due to the extensive reinforcing that must be done to the chassis. Getting the stiffening in place is a real trick, and usually involves either installing a rollcage or adding a cradle under the car that will restrict many maintenance procedures. If the chassis is not exactly square when the reinforcing is welded in, the car will not track straight or handle correctly.

We have better news on the engine front. V-8 Archie (847/392-1723) sells V-8 conversion kits that will work with carbureted or fuel-injected engines. They have an assembly

video that shows how to attach a carbureted Chevy V-8 to the Fiero wiring harness. You'll need to have your tach recalibrated, which V-8 Archie can handle for about \$30. Custom digital gauge sets are available from Mark's Custom Kits (947/427-0312), PISA (602/376-1550), and Dakota Digital (605/332-6513). These can be recalibrated for various engine combinations.

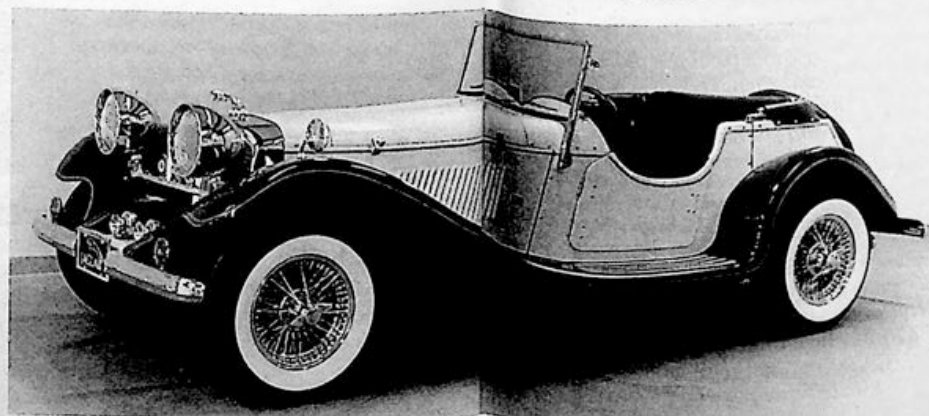
SMOG STREET BLUES

I would like to build the '37 Jaguar SS-100 kit car. I'm holding back because, according to the California DMV and Air Pollution Board, the vehicle must meet smog laws that were in effect the year that the frame, not engine, was built. The kit comes with a frame, probably manufactured within the last year or two, and uses an engine from a '74-'80 Mustang II or Bobcat. An '80 engine will not meet current smog laws. Is there a solution?

Bill Roe
Redwood City, CA

As Editor Jim Youngs related in the Sept. '99 issue, the California smog test for kit cars can be a real bureaucratic nightmare. A "referee" will look over your car and try to figure out some way to fail it. However, there are hundreds, if not thousands, of kit cars in California so it can be done. The most popular SS-100 kits are built by Antique and Collectible Autos (800/245-1310) and Eagle Coach Work (716/897-4292), both of Buffalo, New York. They both use square-tube chassis mounting Pinto or Mustang II running gear, but can be adapted to other Ford or Chevy engines.

We talked to Jerry Zavada at Customs of California (209/239-2068) in Manteca, who builds kits from several



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manufacturers including A&C. He says the California regulations require the engine on a specially constructed car to meet the current emissions regulations for an engine of that year and application. In other words, an '80 Mustang II V-6 would have to have all the emissions equipment and exhaust originally installed to be in place and functioning normally, and the "sniffer" test would have to pass for an '80 Mustang engine. An '80 engine does not have to meet the same standards as a new engine. Provided your engine is healthy and operating as delivered, it should pass.

Another option would be to use a current-model California-spec Ford Mustang V-8 or GM Camaro/S-10 V-6 with all smog gear and exhaust system intact. The regulations at this time also require passing a visual inspection which will determine if the engine has all the emissions controls (and that includes catalytic converters if so equipped, vacuum components, air filter, etc.). This would give you plenty of power and reliability in an emissions-friendly package.

DAYTONA WANNABE

I have been reading your magazine for quite a long time, and I find it to be entertaining and very informative. I own an '80 Corvette which right now is in pieces. I might restore it with some personal touches, but it has always been a dream of mine to own a Ferrari Daytona Spyder. Are these replicas still out there? I have not seen much written about these kits in awhile. The last one I heard about was the Rowley GTC, but that was too high for me. Can you assist an avid Kit Car fan? Can you help me find one so I can build it and then you could do a story on how you helped me find it. Wow, that sounds cool.

Andrew Stigliano
Middle Island, NY

Gee, Andrew, your timing is just a little off. Ferrari's lawyers came down

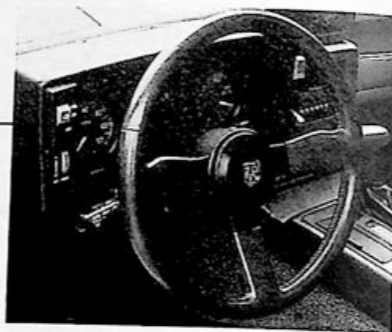
hard on Daytona replica builders awhile back and these kits went away, at least officially. The only Daytona replica we know of in production at this time is made by VR Engineering (602/967-3289), and is designed to fit on a Datsun 280ZX chassis. Of course, you could build one of those and put a Corvette engine in it. Otherwise, your best bet is to look for used examples at kit car shows, on the Internet, and in the ads in the "Replica and Kit Cars For Sale" section of Hemmings Motor News. When you get one finished, let us know...we'd love to see it.

FIERO SPEEDO HERO

Ever since I owned my first mid-engine car (Fiat X1-9) I have been addicted to the type. I've owned a number of Fieros, presently a black '87 sport coupe 2.8, five-speed. The only thing that bugs me is the excessive wheelwell void. I want to replace the 185/75R14 tires with 205/50R17s. I have enough room. How do I compensate for the error in the speedometer that the new tire circumference will create? Is there somewhere that I can purchase a correctly sized replacement speedo drive gear or some kind of adjustable conversion unit? Thanks for any information you can give me.

Steven K. Neyens
Dubuque, IA

We have just the thing for you. Dakota Digital (605/332-6513) makes a universal adapter that allows you to reprogram your speedometer for various tire sizes. This small (2x3x1-inch) box is spliced into your speedometer feed wire, and hooked up to power and ground wires. By throwing a series of switches you can dial it in. It's PN SGI-5 and retails for \$79.95. Dakota also makes a line of custom digital gauges that you could adapt your dash to fit, or Dakota will take your Fiero dash and fit their instruments into it for \$700-\$800 depending on which gauges you want. This could



be the best way for Fiero fans to get rid of those ridiculous 85mph speedos.

THAT'S A SWITCH

I love your mag. Is Autospeed Motorcars still in business? I called their number and the recorded message said the phone was out of service. Also, where can I buy a cutoff switch like I read about in your mag? Please help.

Mike Moran
Laurel, MD

Autospeed is indeed alive and well, now renamed JPS Motorsports. The new phone number is 818/985-8891, and the address is: 11323 Vanowen, N. Hollywood, CA 91605. No switch in products, just the moniker.

As for a cutoff switch, we assume you mean the kind that shuts off the electrical power. They're required for many track events. Along with JPS Motorsports these are sold by stores that carry racing and hot rod parts, or through the mail from Speedway Motors (402/474-4411). The price ranges from around \$20 to \$30, depending on whether you have a generator or alternator. Follow the installation instructions carefully. When the switch is shut off, the motor and all electrical functions (fuel pumps, etc.) should stop immediately. Be sure to place the switch where the corner crews can reach it, and you can turn it on and off while strapped in the seat. Race car builders often mount them on a flange welded to the rollbar just above door level. Also, use adequate diameter cable from the battery to the switch and then back to the motor. If it's too small, you'll have a voltage drop and the engine can be hard to start. We recommend 00 weld-cable or similar.

KC

Have a technical question about your kit project? Send your questions to Kit Tech, Kit Car, 6420 Wilshire Blvd., Los Angeles, CA 90048, or e-mail us at kitcar@emapUSA.com.

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Index of Advertisers

American Custom Engineering	72
American Speed Enterprises	67
Antique & Collectible Autos	C4
Archway Import Autoparts	72
Assoc. of Handcrafted Autos	67
Branda, Tony D.	9
Canton Racing	17
Carlisle Productions	63
Caroselli Design	70
Cavaliere Cars	53
Classic Auto Insurance	72
Classic Roadsters	31
Classic Tube	70
Cobra Restorers	71
Concours West	72
CT Mustang	72
Custom Autosound	61
Encore Motors	70
ERA Replica Automobiles	18
Euro-Works	69
Everett-Morrison Motorcars	C2
Excellence Motor Carriages	70
Exotic Illusions	71
Factory Five Racing	11, 27
Fiero Conversions	70
Final Concept	59
Finish Line	35
Ford Racing Performance	6
Gary's Custom	41
Heacock Insurance Group	71
Headers By "ED"	71
Humbug	72
Jasper Engines	17
Jet-Hot Coatings	41
Lone Star Classics	25
Mark's Custom Kits	69
Master Street Rods	63
MidStates Classic Cars	53
Money Saver Group	71
DBA Kit Car Accessories	71
North American Arkley	65
Ol' Joint Jigger	61
P S Engineering	71
Pigeon Performance	71
PISA Corp.	64
Pro-Shocks	70
R&D Design Concepts	5
RaceSearch.com	71, 72
Rainbow Classic Cars	47
ROL Gaskets	71
Ryane Motor Sports	42
Shell Valley Companies	72
Southern Automotive	72
Specialty Autoworks	65
Stainless Specialties	61
Sun Ray Products	C3
Superformance	71
T-3	15
Thermo-Tec	72
Top Gun Exotics	59
Unique Motorcars	72
U.S. Steel Buildings	52
Velo Rossa Engineering	13
Vintage Air	18
Vintage Speedsters	40
Westwood Publishing	70
XK's Unlimited	70
Z-Rod	72

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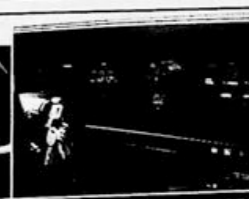
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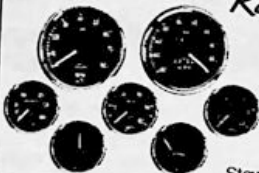
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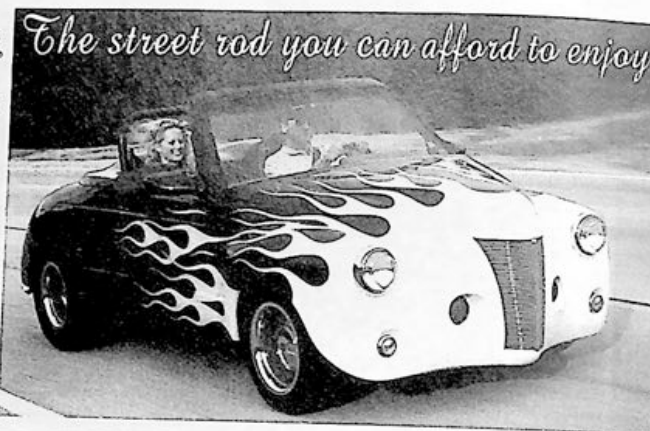
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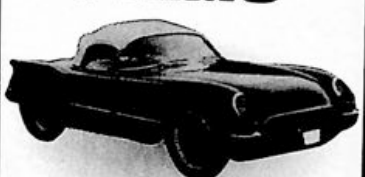
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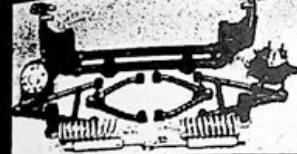
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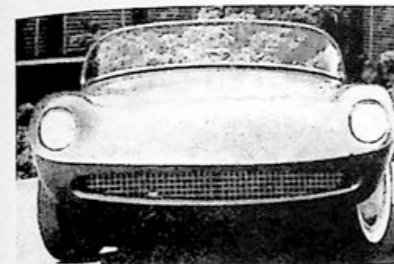
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KIT CARCHIVES

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By Harold Pace



MEET THE CONQUEST

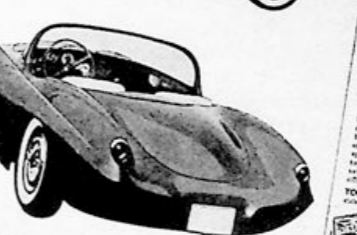
LES DAWES AND HIS DANDY LADAWRI

In the late '50s, California was the hotbed of American kit car manufacturing. In addition to Glasspar, Devin, Kellison, Allied, Bangert, and many others was LaDawri Coachcraft, founded by expatriate Canadian Les Dawes. He had been working with fiberglass since about 1955 before moving his operation to Los Angeles circa 1957. This coincided with the introduction of his first body design, the handsome LaDawri Conquest, which led to LaDawri becoming one of the most successful kit car companies of the time.

The Conquest was a two-seat roadster with flowing, sculptured lines and a distinctive twin-nostril nose. Compound curves were used everywhere for strength and a "bow line" arched down the sides. An inverted GMC truck windshield was mounted in a molded-in frame that housed a steel rollbar, and a sculpted dash and console tied in with the exterior styling. The contours were smooth, and Dawes claimed to have tested them in the wind tunnel at U.B.C. laboratories in Canada. This new body was well received and was featured on the cover of *Road & Track* magazine in July '57.

It was built to fit on a 100- to 104-inch wheelbase chassis, which usually meant cut-down Ford frames, live-axle Corvettes, or the popular Kaiser

BORN IN CANADA, but now living in California, Les Dawes is a man of many talents. He is a designer, draftsman, and a builder. He has designed and built many cars, including the LaDawri Conquest. He is also a writer, and has written several books on car building. He is a very successful businessman, and his company, LaDawri Coachcraft, is one of the most successful kit car companies in the world.



THE CONQUEST is also available as a semi-complete car, less the engine and transmission. This version includes a tubular frame, suspension system, driveline components and other major parts. The price assembled is \$995.

Henry J. Any engine could be fitted, with domestic V-8s leading the way. Initially, these bodies were sold in one-piece form for \$395, but a more finished example with door jambs and inner panels was quickly added for \$200 more. LaDawri would also sell rolling chassis or turnkey cars built on modified Henry J chassis, with the buyer's choice of rear suspension and engine. A rolling body and chassis sold for \$995 in 1958, and lightweight shells without doors were sold for use on racing cars. Options included a removable hard-top, a convertible top, bench or

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scaled down like the Quest Q.T. An even shorter version, the Del Mar, fit chassis from 84 to 92 inches. The Daytona and Conquest, along with their smaller brethren, were very popular and provided sufficient capital for LaDawri to buy a number of bodies from other manufacturers. In 1961, they picked up nine models from Victress, which they promptly renamed and added modified versions as well. The Sicilian (formerly



KIT CARCHIVES

Victress C-2) was a handsome coupe body that fit on foreign car chassis while its big brother, the Castilian (Victress C-3), was visually similar but designed for fullsize American car chassis. The Castilian was later treated to a hatchback with increased luggage capacity and renamed the Castilian Grand Turismo Sports Wagon. The Cavalier (Victress S-4) was a stylish convertible for full-length American-car chassis, but LaDawri also made a shortened version, the Conquistador.

In addition to these "mainline" body kits, LaDawri also carried a number of lightweight body shells for racing or custom applications. These typically did not have inner panels and were sold only in one-piece form. The Centurion 21 was a futuristic convertible with a removable hardtop that looked like a '50s interpretation of the Batmobile. It had big fins and dramatic, scooped wheelwell treatment. This design had been purchased from Savage Sports Car Manufacturing in Los Angeles. Single or double headlights were optional, and the taillights were from a '57 Chrysler. The body weighed 175 pounds and would fit a number of American sedan chassis.

The Vixen and Cheetah were old Victress designs that resembled '50s-era Ferraris. The Vixen fit 98- to 102-inch chassis, while the Cheetah was designed for 92- to 96-inch wheelbases. These were lightweight, single-piece racing shells and were molded in red.

The Firestar was a simple shell for homebuilt racing cars that ran in small-bore road racing. It was designed by Ralph Starkweather for his own use, and he leased the molds to LaDawri who paid him a royalty on each one sold. It resembled the Lotus 11 racing cars of the '50s. LaDawri apparently also inherited the Byers SR-100 and CR-90 bodies from Victress, but did not show them in their brochures.

In addition to buying all of these new kits, LaDawri added an extensive line of fiberglass body panels and tops for domestic and foreign cars. They sold dragster bodies for rail jobs as well as Model T, Anglia, Fiat, Henry J, and Austin Bantam shells for race or street rod use.

By the mid-'60s the LaDawri lineup was starting to look dated, and sales were slipping away. Dawes had been working with PBS Engineering, which built a line of Fiat-powered racing cars in California. Aerospace engineer Clark Adams had designed a graceful and clean coupe body for the PBS mid-engine chassis and LaDawri built them. LaDawri named this body the Formula Libre and came up with a unique sales angle. "Formula Libre" means "free formula," and this body could be ordered to fit any chassis configuration the buyer could dream up. The standard model fit on a VW floorpan, but LaDawri would change the hood line and interior pod to work with front-, mid-, or rear-engine chassis with tiny four-bangers to big V-8s. It was to have either a tilt-forward passenger compartment like the Fiberfab Aztec or gullwing doors. The top had "double bubble" blisters made popular by Abarth sports cars. LaDawri tried to raise money to put the Formula Libre into production as a turnkey car with a new VW chassis and Corvair power, but apparently the funding fell through. LaDawri disappeared from the kit scene in the late '60s.

All of the LaDawri roadsters and coupes sold well and are reasonably plentiful today, with the race shells and the Centurion 21 being more scarce. Any LaDawri would make the basis for a great project and would be well worth putting some time into. As for value, that would depend on the work completed and the running gear, but expect to pay in the \$500-\$1,500 range for unmounted bodies. The most valuable configuration would be on a period Corvette chassis, and it appears that a number of these were built. A LaDawri body mounted on a Cobra replica-type chassis would be a distinctive daily driver, or on period running gear could make an entertaining collector's item or vintage racer.



LETTERS TO KIT CARCHIVES

KIT AND KEND

Enclosed is a picture of a car we purchased about a year ago. The title says it is a 1979 Kend. I have been told it is a replica of a '65 Ferrari Dino. It would be a great pleasure for me to know what I have, and I'd appreciate any information you could tell me about this kit. I love your magazine and noticed in the last issue that you had articles about these cars in the Apr. '82 and May '85 issues. If there is a way to get that information I would be grateful.

Jason Geiger
Newton, NC

Your beautiful blue kit appears to be a Kelmark GT, which was built in Okeanos, Michigan, from '69 until the late '80s. The articles you refer to featured the visually similar Karma and Magnum, which were built in California and South Dakota. They differ from the Kelmark in having an opening trunk in the front bodywork and a set of louvers along the nose. The Kelmark was inspired by the '68-'74 Ferrari-built Dino 206 and 246GT. For more info on the originals, there is a reasonably good book currently available called Ferrari Dino by Anthony Curtis.

The Kelmark was brought to life by Randy Markham and Jim Kellison, although Kellison seems to have departed soon after inception. It was originally VW-based and offered VW, turbocharged VW, Porsche, or Corvair engines. Kelmarks were sold in kit and turnkey form. Although you did not mention your drivetrain, it could also have been built on a tubular frame from Mid-Engineering, who sold kit car chassis that were often fitted to Kelmarks (both companies were in Michigan). These kits could use Oldsmobile, Chevy, or Buick V-8 engines bolted to an Oldsmobile Toronado transaxle. Front suspension was VW on early versions, later replaced with double A-arms. Some had transverse GM V-6 engines and transmissions as well. I covered the Kelmark in the Mar. '96 issue. To purchase back issues, call 800/800-KCAR for availability.

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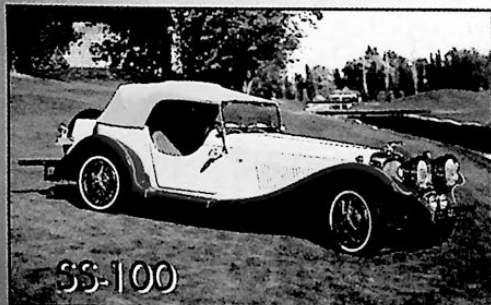
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